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ABSTRACT

Effective cash management and short-term investing are discussed in this "how to" guide designed to benefit most institutions of higher education. The following premises are examined: proper compensation for effective cash management is not an expense but an investment; effective cash management and short-term investment programs do not depend on high market rate of investment return; one's goal can well be to keep 100 percent of available cash resources invested and still maintain adequate compensating balances in bank accounts; a good banker is one of the institution's greatest aids; and if cash accounts are not in a deficit position most of the time, the cash management program is not as effective as it should be. Part One covers daily cash management of college and university working capital dealing with such ideas as accounting principles, bank relations, cash receipts and cash flow projections. Part Two covers short-term investment of working capital discussing items such as certificates of deposit, liquidity, risk, and money market data. Appendices include a questionnaire, tabulation, short-term investment vocabulary, and common short-term investments. A bibliography is also provided. (LC)

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Cash Management & Short-Term Investments for Colleges and Universities

Leonard H. Haag

National Association of College and University Business Officers

WASHINGTON, D.C.

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Preface

THIS BOOK WAS WRITTEN BECAUSE OF A BELIEF, BASED ON YEARS OF EXPERIence, that in proportion to the effort expended, the financial return from effective cash management is higher than from any other administrative function. Although management of the daily flow of funds, both into and out of an institution, and the related short-term investment of temporary excess working capital are administrative functions of limited scope, they have great productive potential. This book is intended as a simple but detailed "how to" guide to all phases of cash management and short-term investing, and should benefit most institutions of higher education.

An analysis of the effectiveness of cash management shows that most institutions are far below their potential level. With little additional (but well-directed) effort, the potential resources of an institution may be increased. Additions to resources may be ten, twenty, or fifty times the compensation cost of the staff member or members assigned to administer working capital more effectively. What institution cannot allocate ten, twenty, or even fifty thousand dollars a year to compensate for an improvement in management that will increase available resources by $300,000 or $600,000 or, in some instances, millions of dollars a year?

Parts of this subject have been covered in various publications, but no effort has apparently been made to put all the parts together, to expound on the "how to" aspects of various phases of the subject, and to concentrate on the special aspects relating only to colleges and universities. Interviews with business officers of a number of educational institutions indicated that none was aware of any comprehensive publication on cash management and short-term investments for such institutions.

This book explains the following statements, the truth of which the uninitiated might question:

"Proper compensation for effective cash management is not an expense; it is a wise investment."

"Effective cash management and short-term investment programs do not depend on high market rates of investment return."

"One's goal can well be to keep 100% of available cash resources invested and still maintain adequate compensating balances in bank accounts."

"A good banker is one of the institution's greatest aids; treat the banker fairly."

"If cash accounts (on the books) are not in a deficit position most of the time, the cash management program is not as effective as it should be."

Several years ago a state college employed the author to develop a cash management and investment program, and then gave complete cooperation and support to required operating changes needed for the development of such a program. The college specified that principles and reasonable restrictions should be proposed for approval as board policy; the only further restriction was to follow the policy and produce results. In such an atmosphere of freedom and challenge, we developed a program that, by our measurements, put the institution's cash management and short-term investment program ahead of those of all other state institutions of higher education in Michigan.

It is appropriate to acknowledge those persons and organizations without which this effort would have been impossible. Ferris State College provided the author with released time at full salary in order to develop the manuscript for this book. An administrative leave grant by NACUBO, funded by the Exxon Education Foundation, underwrote the expenses of research, travel, supplies, postage, typing, etc., that were necessary merely to prepare this work for publication. Invaluable help and constructive suggestions from my administrative assistant at the college kept the project from bogging down when the press of daily work would otherwise have interfered. College staff members volunteered to review preliminary drafts and helped with constructive suggestions of wording, arrangement, and content. A privately developed computer program, for tabulating and analyzing the questionnaire responses shown in appendix A, was contributed to the project.

Although, as author, I take full responsibility for the content of this work, my administrative assistant, Ross E. Momany, Jr., must share in any credit because of his diligent work on the entire project. His efforts included coding and summarizing all questionnaire replies, proofreading, and suggestions regarding both content and wording for all chapters. In retrospect, I would not attempt this work without assurance of such dedicated assistance from one so knowledgeable of the subject matter.

Finally, this book would never have gone beyond the stage of a daydream without the continual encouragement of my wife, Jeannette, who knew this to be the one thing I wanted most to accomplish.

1

Introduction

THIS BOOK IS PRESENTED IN TWO PARTS. PART 1 COVERS DAILY CASH MANagement of college and university working capital. Inasmuch as efficient cash management increases the pool of temporarily idle cash, which short-term investment will make productive, cash management may be described as the producer of the fuel that runs the short-term investment program.

Part 2 covers short-term investment of working capital. The various concerns and considerations to be evaluated in making investments, descriptions of and methods of investing in money-market instruments, and yields and effectiveness measurements are detailed in nontechnical terms so that the uninitiated investor will be properly guided and the experienced investor may become more skilled or be assured of the institution's present effectiveness.

The reader should realize that this is a book dealing entirely with management and investment of short-term funds or working capital. Endowment and permanent types of investment are completely separate from the scope of this book. Much material has been published relating to investments of endowment and similar funds.

Corporate treasurers have long recognized the productiveness of short-term investment of otherwise idle cash. The American Management Association, university schools of business, and other organizations have sponsored seminars devoted to training corporate officers in cash management and related investment procedures. Many of the methods used in business also apply to colleges and universities. However, especially in cash management, institutions of higher education have many cash flow problems that differ from those of business and industry. One might heed the instruction given to corporate cash managers in the advertising for national seminars: "Never forget CASH, your other money-making resource."

Accountants always recognize cash as a balance sheet asset. However, from a cash management viewpoint, cash is an asset only when properly used. If left idle and uninvested, much potential addition to resources is lost; in this situation cash has been allowed to become a cash manager's liability. One might say that not making full and effective use of available cash by short-term investment is as wasteful as leaving lights on in vacant areas and not turning off unneeded water.

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This book is primarily concerned with those short-term investments maturing within a period of one year. These investments usually have considerable liquidity, that is, they have the potential for being quickly converted into cash if the need arises.

Failure to invest idle working capital can lose considerable additional funds for an institution. A positive approach in developing an effective cash management and investment program produces additional income; such additional funds can alleviate some of the operating budget pinches. Investment income may buy library materials, laboratory equipment, campus improvements, salary increases, and operating supplies—in fact, investment income helps to cover all operating expenses. On the other hand, one may look on investment income as a factor that can help keep tuition and room and board charges lower than would otherwise be required. If an institution is publicly assisted, investment income can reduce the amount of taxpayer assistance from the amount that would be needed if funds were allowed to remain idle.

How great a factor can investment income really be in financing higher education? A study of published financial statements of thirteen state-assisted colleges and universities in Michigan for two fiscal years (1973–1974 and 1974–1975) reveals something of the importance of effective cash management and investment programs in higher education.

The total operating fund revenues of an institution indicate the amount of working capital flowing through an institution in a year. Obviously, much of this cash is expended nearly as quickly as it is received and can never be invested. This is especially true for publicly financed institutions, which receive much of their funding in monthly installments rather than all at the beginning of an academic period, as is the case with independent institutions. However, even when received in monthly installments, a certain portion of the revenues is held long enough for short-term investments to add to the institution's resources.

How effectively has an institution used the cash coming into its possession? If investment income of the current operating fund, taken as a percentage of total current operating fund revenue, is used as a measure of effectiveness of cash management, some interesting results appear. Of course the percentage is low when related to total current funds revenues because a large share of revenue never becomes invested.

Using the above measurement, and based on the average for two fiscal years ending June 30, 1974 and 1975, of thirteen major public institutions of higher education in Michigan that were analyzed:

1. The best percentage return was double the weighted average of the other twelve institutions.
2. The other twelve institutions produced $23 million operating fund in-

vestment income over the two-year period. However, if they had produced at the level of the highest percentage rate, they would have doubled their investment income by producing over $23 million more investment income for the twelve institutions.

There are operating differences among educational institutions that make cash management more difficult at some institutions than at others. Many large universities are so complex that cash management can probably never be quite as efficient as in the less complex, small or medium-sized institutions. Several of the largest of the twelve institutions referred to above could probably not produce at the level of the top producer, even if personnel were exchanged. The above data are used merely to illustrate the significance of efficient cash management and investment programs and what such programs potentially can mean to an institution.

Neither the cash management nor investment methods and procedures in this book require computer availability. However, such capability is helpful in supplying data for the pooled investment methods in chapter 7. Also, computers may be helpful at large institutions for analyzing float data and in the analysis of daily cash balances on a "collected funds" basis.

Cash management does not cost, it pays. Organizing for efficient cash administration is important. Whether an institution employs someone to develop and run a program, or a consultant to develop a program and to train clerical personnel to run the program, the cost should be a small fraction of what the program will produce in increased resources.

A small institution may follow the second alternative and reap many benefits; persons experienced in larger operations can find time to act as consultants to smaller institutions. Only conscientious clerical attention, continual but not necessarily full-time, is required to maintain an effective program. The larger institution most likely will employ someone to implement its program and to keep it up-to-date during constantly changing economic conditions.

Working capital is a major part of the financial operation of every college or university; large or small, every institution can benefit from efficient cash management. Cash management produces the material from which effective investing creates additional resources for any organization.

A questionnaire on cash management and short-term investment practices was part of the initial research for this book. Funded by the NACUBO grant referred to in the preface, the questionnaire responses supplied 206 usable replies from public and private four-year institutions and indicated the degree of expertise existing in 1976. Appendix A contains a tabulation of questionnaire replies and a further description of its significance. Subsequent chapters both on cash management and on investment contain references to the questionnaire tabulation.

Part I

Cash Management

2

Cash Management—The Power Behind Short-Term Investments

CASH MANAGEMENT IS THAT ADMINISTRATIVE FUNCTION WHICH PROVIDES the power to make the cash resources of any organization more productive. Before one becomes interested in exactly what cash management is in all of its ramifications, one must realize, as indicated in chapter 1, that an investment program can increase resources far beyond the cost of the function.

Over ten years ago, in his book on the subject of cash management, Fenstermaker said, "At a time when the demand for funds is so great, public institutions and governmental bodies are losing millions of dollars in income. This loss is a direct result of the lack of understanding of many public administrators of the techniques of getting a maximum return on the cash flow of their organization."(1) The questionnaire used in 1976, on which much of the research for this book is based, indicates that the lack of understanding on the part of many administrators still exists. After ten years, the above quotation is even more applicable with today's inflated cash flows and doubled or tripled levels of investment yield.

Not only is it important to realize what a short-term investment program can do for an institution, but it is equally essential to be aware that the fuel for any working capital investment program is supplied by daily management and control of the cash resources of the institution. The effectiveness of the cash management operation determines, to a large extent, the size of the investment program. Cash management and investment functions are so interrelated that, although two similar organizations may have comparable cash revenues, the average short-term investment portfolio of one could be double that of the other. This is possible if working capital administration is far superior in one institution.

Appropriate to the situation is a statement by Hill, "The biblical parable of the talents, describing the ultimate fate of the man who buried his talents in the ground, may be the first recorded failure of a short-term money manager."(2) How many persons still leave resources unused? How similar to burying one's talents is the failure to use excess funds accumulated in a bank account? Excessive idle cash balances must be considered an indication of inefficient management.

Alexander B. Trowbridge, as president of the Conference Board, stated in the foreword to Fisher's book, "The current thinking of many knowledgeable financial executives is that cash is a working asset, and that a firm should get maximum mileage from every dollar of cash resources in order to maximize profits."(3)

In conferring with officials of various colleges and universities during preliminary research for this book, the author was impressed by a statement of one vice-president for finance at an independent, four-year college. In one word, "attitudinal," he expressed the key to effective cash administration. Attitude is one word spelling the difference between efficiency and mediocrity. The attitude of the entire business staff toward money and its time value makes all the difference in the effectiveness of cash administration. Attitude is vital for all who have any connection with receipt or disbursement of funds, at any level of the organization. As will be emphasized in a later chapter devoted entirely to organization for cash management, an awareness of the time value of money by the entire staff is essential. The cooperation of all is one key to a successful program, and the manager of a cash and investment program cannot take full credit for the success of the program except insofar as that manager inspires and receives the cooperation of the total business staff.

With regard to the time value of money, if large sums are considered, such as $1 million at 6%, the value for only one day is $167. Over a period of 360 days that value becomes $60,000. As these figures indicate, if one can increase the average investment portfolio by $1 million through better cash management, an additional $60,000 will be earned, and the cash manager will truly have earned his or her salary.

The science of cash management and short-term investing has developed mainly in the last twenty years. Lordan states that prior to 1956–1957, when the U.S. experienced its first tight money period after World War II, funds had been plentiful, and low money market rates made short-term investment opportunities almost nonexistent.(4) An example of Lordan's statement is revealed by Federal Reserve Bulletin data on average yields for 3-month treasury bills, 4- to 6-month commercial paper, and 3- to 5-year government securities. In 1954, average yield was only 1½%; in 1969 comparable yield was 7%. Obviously, cash management was nearly five times as important in 1969. Then there was 1974, when yield rates reached and exceeded 12½%.

Table 2.1 indicates yield values of $100,000 for various lengths of time at various selected yield rates. This table makes apparent the fact that smaller amounts, for longer periods, as well as larger amounts, for even one day, have meaningful values for well-managed cash flows.

TABLE 2.1

DOLLAR VALUE OF $100,000 INVESTED

% Yield 360-Day Basis	1 day	30 days	90 days	180 days	360 days
4.0%	$11.11	$ 333.33	$1,000.00	$2,000.00	$ 4,000.00
4.5%	12.50	375.00	1,125.00	2,250.00	4,500.00
5.0%	13.89	416.67	1,250.00	2,500.00	5,000.00
5.5%	15.28	458.33	1,375.00	2,750.00	5,500.00
6.0%	16.67	500.00	1,500.00	3,000.00	6,000.00
6.5%	18.06	541.67	1,625.00	3,250.00	6,500.00
7.0%	19.44	583.33	1,750.00	3,500.00	7,000.00
8.0%	22.22	666.67	2,000.00	4,000.00	8,000.00
9.0%	25.00	750.00	2,250.00	4,500.00	9,000.00
10.0%	27.78	833.33	2,500.00	5,000.00	10,000.00
11.0%	30.56	916.67	2,750.00	5,500.00	11,000.00
12.0%	33.33	1,000.00	3,000.00	6,000.00	12,000.00

Effective administration of working capital involves many details, which will be discussed in the following chapters of part 1. However, nearly all phases of the management of working capital fall into four categories as follows:

1. Receipt of cash and the banking function (chapters 4 and 5).
2. Disbursement control (chapter 6).
3. Cash flow forecasting (chapter 8).
4. Investing excess temporarily idle working capital (part 2).

A Conference Board study states that financial managers who get the most mileage from their cash do so in five primary ways: (1) speed-up of collections, (2) reduction in inventory investment, (3) improved control of payables, (4) improved control of bank balances, and (5) shrewd investment of cash surpluses. (5)

Items 1, 3, 4, and 5 particularly apply to college and university cash management, and all fall within the four categories listed previously. Although item 2 above may not be as applicable to higher education as it is in merchandising and manufacturing, it is certainly an operational aspect that should not be ignored.

Obviously, it is only as the investment function is carried out that results of all other efforts in cash management become productive. Cash management produces a pool of temporarily idle cash; an investment program to put the pool of idle cash to work is all-important. Whether it be a large sum for a weekend, or for only one day, or a relatively smaller amount for a

month or two, keeping maximum amounts of total resources constantly invested produces maximum returns.

Although the primary goal of good working capital administration is to maximize balances available for short-term investment, there are two related goals that should not be overlooked. An efficient management program should control all bank account balances at a proper level to compensate banks for their service. Likewise, the program will insure that sufficient liquid funds are available to pay current bills on time, and to take advantage of all proper cash discounts on suppliers' invoices.

Realizing that investments provide the payoff for cash management efforts, one should question how much of the working capital of an institution can be invested on an average annual basis. Experience shows that 100% of average cash resources is an attainable goal, even while maintaining adequate compensating bank balances at all times. Of course, this means that more than 100% of total average cash resources are used for the institution's benefit. Chapter 6 will justify this goal and show that it involves using, for the institution, those resources assigned to another organization until such time as that organization is able to use such resources for its own purposes. The author objects to the usual term for this as "playing the float." Rather, one legally "uses" float for the institution until the resources are used by the ultimate owner. This the author considers as using, working, or employing, but never "playing."

Productiveness of an investment program depends on both the level of money market yields and on the average amount of money invested. Since the investor has little control over the level of market rates of return, it is the amount, or proportion, of working capital invested that primarily determines the effectiveness of a cash manager's efforts.

A rule of thumb has been developed for estimating the potential short-term investment portfolio and its earnings. The total average portfolio, during a year, can be expected to approximate 25% of the total current funds revenue plus any semipermanent, short-term, investable amounts from other than operating funds. The portfolio should produce an amount calculated by multiplying the average rate of yield on 91-day treasury bills by the average portfolio. For example, an institution having annual current funds revenue of $32 million in a year when 91-day T-bills have an average yield of 6% should have an average portfolio of $8 million (¼ of current fund revenues) plus, for the purpose of this example, $1 million from unused loan fund balances and plant fund reserves. The $9 million portfolio at 6% should produce investment income of $540,000. Of course, the portfolio will be higher or lower depending on the degree of effectiveness of the institution's cash management. At independent institutions, the level of investments should be higher than at publicly financed institutions because, at the

former, cash is received at the beginning of each term in substantial tuition and room and board payments. At public institutions, student payments are a smaller proportion of total revenues, and state assistance funds may be received monthly rather than at the beginning of each term. This reduces the level of investable funds at state-assisted institutions.

The persons who should manage cash, and the organization of staff for that function, will be discussed in chapter 10, after consideration of the various mechanical aspects of working capital management in chapters 3 through 9. The responsibility for cash management was emphasized by Robert E. Hill, as president of Chico State College in 1966, who wrote, in the preface to Fenstermaker's book, "The sheer size of their [public institutions and private nonprofit organizations] operations today increases the responsibility of public administrators to maintain a tight fiscal control, and to see that maximum use is made of all available resources. This involves more than just making certain that public funds are not misused. It includes the efficient use of all available resources."(6)

Notes to Chapter 2

1. Joseph Van Fenstermaker, *Cash Management: Managing the Cash Flows, Bank Balances, and Short-term Investments of Non-profit Institutions* (Kent, Ohio: Kent State University Press, 1966), p. 1.
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4. James F. Lordan, *The Banking Side of Corporate Cash Management* (Boston: Financial Publishing Company, 1973), p. 1.
5. "Managing Company Cash," Conference Board Research Report, Studies in Business Policy, No. 99 (New York: National Industrial Conference Board, Inc., 1961), p. 75.
6. Joseph Van Fenstermaker, *op. cit.* Preface by Robert E. Hill, p. v.

3

Cash Management and Accounting Principles

A MOST IMPORTANT PRINCIPLE, FROM THE VIEWPOINT OF EFFICIENT CASH management, is that a single bank account can represent a number of cash accounts on an institution's books. The old-time belief, that each different source of cash requires a separate bank account under fund accounting, has no reasonable foundation. Perhaps such a practice developed as a result of administrators' lack of confidence that accounting records can adequately and accurately account for cash from different sources when deposited and disbursed from a single bank account. Even under a manual system of accounting, it should be easily possible to accurately account for the cash of a number of separate funds on the institution's books when such cash is held in only one bank account.

When it is accepted that a single bank account can represent the cash of any number of book cash accounts, cash management becomes less complicated. Deposits can be made into one bank account with maximum simplification of cash receipts management, as will be discussed in detail in chapter 5. Where it is desirable to have disbursement accounts in more than one bank for reasons of institutional relations, all deposits may still be made into one bank account. Appropriate transfers of cash to fund the other bank accounts can be accomplished as required to cover disbursements from those other banks.

Through the use of proper and simple account coding, a single disbursement check can be charged to any number of separate fund cash accounts. A reduction in the number of separate bank accounts simplifies all phases of cash management (covered in chapters 4 through 10). Because of the importance of a reduced number of bank accounts as an aid to all aspects of efficient cash management, it is the first and most important operational feature to be considered.

Accounting records and methods must be designed for proper safeguarding of cash as well as for audit verification of all transactions. Procedures for cash entries may not be adaptable to immediate on-line information, which is so vital to effective short-term management of cash and the investment of idle funds. Therefore, the cash manager should design supplemental procedures and records as are necessary to supply accurate, daily information on total deposited cash, released disbursements, etc. With regard to

disbursements, totals alone are inadequate if incremental funding, described in chapter 6, is to be effective. Here, exact detail on the contents of each day's disbursements and the names of payees for large check payments are essential. This type of information is normally beyond the ability of most accounting systems to produce on a daily basis. Hand-posted worksheets, memoranda, and telephone contacts give immediate information that later shows up in accounting records after delays of days or weeks. The point is that accounting policies and procedures should be designed to facilitate cash management through simplification of cash and bank accounts. However, the need for current daily information should not be ignored merely because official records do not provide it in a manner normally associated with on-line computer systems.

Although investments are the subject of part 2, it is appropriate here to consider the basic principles affecting accounting records when investment transactions take place. It is essential to recognize that investments are not expenses, but an exchange of one asset (cash) for another (investments). Therefore, the purchase of a short-term investment represents a debit to an investment account (asset) and a credit to cash on the institution's books. Likewise, when an investment either is sold or matures, cash is debited and the investment account credited for the book cost value of the investment. Any excess of cash received over investment book value represents investment income, which is credited to the income account.

In recent years a trend has developed to properly recognize accrued investment income on an institution's books at the end of each fiscal period. The need for accruing income has become more important as short-term investments reach such volume that accrued income becomes significant in amount. With widely fluctuating short-term interest rates, the variations in amount of investment income from one fiscal period to another can be substantial. Pooling of cash resources and investments, as described in chapter 7, increases the importance of accruing income when accrual is material in amount at the end of a fiscal period. Pooled investment income is logically allocated to participating funds in proportion to the average available cash of those funds. If a fund has substantial resources in one year but not in a following year, the failure to accrue pooled investment income at the end of such first year severely penalizes that fund.

For short-term investments, market value at the end of a fiscal period does not seem to be a logical basis for booking accrued income. On such temporary investments, it is more appropriate to calculate the total potential income, both from interest and from premiums or discounts on purchase price, for the period ending on the date such income will be realized. The total potential income may then be allocated between the two fiscal periods based on the number of days in each period that the investment will be held.

4

Cash Management and Bank Relations

THE IMPORTANCE OF EFFECTIVE BANK RELATIONS TO A CASH MANAGEMENT program is stressed by most authors on the subject of cash management. In this regard, Hill said, "No cash management program can be complete without an effective [corporate-bank relationship]."(1) In breaking cash management into four essential elements (cash forecasting, money mobilization, investing surplus cash, and company-bank relations) Lordan stated, "Of the four cash management functions outlined, none is more important than company-bank relations. Every cash management program does require a close working relationship between company and bank."(2)

By bank relationship is not meant a friendly acquaintance with bank personnel. There are many things that must be done for customers by a bank in managing cash—things which customers cannot do themselves—and when done efficiently (low cost) and effectively (promptly and reliably), are essential to administrative effectiveness.

The following is by no means an exhaustive list of the services an institution may require from banks, but some of the functions of the bank relationship are:

1. Ability of the bank to collect *funds* promptly on checks deposited by a customer. Anything more than a two-day (from date of deposit) collection time is questionable effectiveness.

2. Ability to properly service *disbursement* accounts. This is a function that everyone assumes a bank can do, and rightly so. However, assistance on stop-payments, forgery problems, and related advisory capabilities relating to the disbursement function are also essential complements to merely paying checks drawn by a depositor.

3. Ability to *transfer money* to other banks on the same day. This may be by bank wire, Federal Reserve wire, or correspondent account, and must be accomplished on the same day.

4. *Investment* assistance in purchase or sale of U.S. Treasury or other money market securities. Also, the ability to sell securities to a customer on a "repurchase agreement" basis and to buy on a "reverse repo" basis is of great importance (see chapter 20).

5. *Custodial services.* As discussed in part 2, the ability of a bank to accept investment purchases and "safekeep" them for a customer is an essential part of the investment side of cash management.

6. The ability to collect *foreign exchange* denominated deposits and to handle transactions with foreign (non-U.S.) banks may be most essential if an institution has a number of foreign students or students in overseas academic programs.

7. *Loan capability* to finance construction loans for institutional building projects. Related to this capability may also be the ability to act as a trustee for bond financing by an educational institution.

8. Other functions such as collection of letters of credit, credit reports, etc. may be important to various institutions.

With reference to the various functions that a bank performs for an institution, the degree of effectiveness often depends on the customer's access to reliable bank personnel. This does not necessarily mean access to top officials of a bank, but rather to staff members who can always be reached and relied on to execute requests accurately and promptly.

A question that often comes up with regard to developing bank relationships is, "How can one judge the financial safety of a bank and where can one obtain necessary financial data?" This problem may be especially important when trying to establish investment relationships with out-of-state banks. (This problem is discussed in chapter 22.)

In developing good bank relations, one first must realize that a bank provides a number of services that customers cannot provide for themselves. Next, one must realize that all of these services involve a cost to the bank. Costs are made up of salaries, building operation and maintenance, operating supplies and expenses, etc. Too often an educational institution that pays in full for utilities, supplies, contract services, etc. assumes that bank services should be supplied free, or at a reduced cost. This attitude may originate because the customer fails to see that banks incur costs for each service they provide. Also, banks are in business to make a profit for stockholders, who provide the capital necessary to establish financial service organizations. An educational institution does not expect to waive tuition for bankers. Why should the institution expect a bank to furnish its services to an educational institution without charge?

There are two usual ways in which banks are compensated for their services. Either the customer pays a fee for each service, or maintains a balance sufficient to satisfy the bank. This latter method is called a "compensating balance" because its size allows the bank to earn some compensation through investment or lending of excess amounts.

A bank customer often believes that it would be preferable to pay a fee for each service. Bankers prefer compensating balances for two reasons. One is that fees are difficult to set because allocation of all direct and indirect bank costs to each specific service becomes an involved cost accounting problem. Secondly, and perhaps most importantly, compensating bal-

ances supply the primary raw material, money, that is essential to profitable banking operations. Lending money is one of the primary functions from which a bank receives revenues, and it is the customer's deposit balances that supply a major part of the funds from which banks can make loans.

Fees are becoming more widely used for certain specialized banking services such as stop-payment orders and computer services. However, compensating balances currently remain the most widely accepted method for compensating banks for normal demand account services. For this reason, good bank relations in the daily cash management function may depend on the institution's understanding of the banker's need for compensating balances. Not only should the institutional customer recognize the banker's need for compensating balances, but equally important is an understanding of what constitutes a fair compensating balance. Maintaining balances at a level higher than would be necessary to properly compensate the bank for the level of service received is unnecessarily wasteful. It is similar to overpaying other suppliers for either materials or services.

Referring to the second page of the questionnaire tabulation in appendix A, one finds that most institutions replying to the questionnaire on cash management use the compensating balance method to cover bank service costs. Only 6.8% reported using a fee basis, whereas 65% used compensating balances, and 26% stated that they used *neither* fee nor balance method. It is reasonable to believe that most of the 26% are unknowingly also compensating on a balance basis by allowing "collected funds" balances in bank accounts to average in excess of institutional book balances. A so-called float of hundreds of thousands of dollars could be compensating the bank excessively. Of the 65% who report using compensating balances, five out of six stated that average daily balances are used rather than fixed minimum balances. In 1961 a Conference Board study of business policy included this statement: "All companies want to maintain good relations with their banks; but some feel there is a limit beyond which they are not obliged to go in so doing. Most believe this limit is reached when balances are adequate to compensate banks for the services they render and to provide them with a reasonable profit. Therefore, most larger companies, although they want to be fair, regard close control of bank balances . . . as an integral part of a good cash management program."(3)

In writing about nonprofit institutions in 1966, Fenstermaker stated that many institutions simply maintain a compensating balance which the financial manager believes will compensate the bank and which experience seems to indicate may be satisfactory.(4) Further, he concluded that this method for setting compensating balances usually errs on the side of balances being too high.

Recent interviews between the author and college financial managers

seem to confirm the conclusions reached earlier by Fenstermaker. Even where compensating balances are based on a study of account activity, such studies have not been updated to reflect current levels of account activity or the investment yields currently realizable by bank investment of balances.

Good bank relations, consistent with efficient management of an institution's cash, call for a businesslike approach to determining fair compensating balances in demand bank accounts.

Certain basic factors must be considered in any determination of those balances intended to compensate for demand account services. A formula taking these factors into consideration may be expressed as: compensating balance less required reserves equals a net balance, which when multiplied by the yield on short-term bank investments equals bank costs of service plus a normal profit margin. Bank costs, as used in the formula, are calculated by multiplying the level of activity for each service by the unit cost of each service. Services to be covered include deposit items accepted for collection as well as drawn checks paid out of a demand account and other miscellaneous services, not paid on a fee basis. Realistic cost factors for these services are the most difficult type of data for a cash manager to determine. Banks are hesitant to give out this data, and usually when bankers do discuss such costs, these are not true costs but rather a fee, which contains a profit factor. If bank data, including a profit margin, are used in the formula as cost factors, the separate profit factor should be omitted.

The formula previously expressed in narrative form might be symbolized as:

$$(B\text{-}R)\ Y = C + PC$$

where: B = compensating balance level
R = required reserve on demand accounts
Y = rate of yield on short-term investments
C = cost of all bank services that are not paid by fees
P = margin of profit allowable to bank

The factors in the preceding formula merit further explanation:

Reserves: Under Federal Reserve regulations all member banks and all national banks are required to set aside reserves against various types of deposits. Time and savings deposits require lower reserves than do demand (checking) accounts. These reserves are held as federal fund balances and are uninvested. Being non-earning funds, the reserve must be excluded in determining the portion of compensating balances available to produce earnings that pay for account activity costs. Required reserve levels are changed by the Federal Reserve from time to time, so this is one of the formula factors that need updating when such a change occurs.

Yield: The net compensating balance, after excluding the reserve requirement, becomes a balance the bank may loan or invest. Since demand balances are temporary, it is logical to consider the potential yield as being related to short-term or money market rates of return. Such rates as prime rate, federal funds rate, and 91-day treasury bill rates are some that may be considered for use in the formula. Yield rate is a changeable factor in the formula and needs periodic updating.

Cost: The cost of demand account services depends on both the level of activity in the account and on the cost to the bank for providing each unit of the services. Each account also involves a cost for maintaining the account records regardless of the level of activity. This may be considered a fixed cost and in an active account it is low enough to be disregarded. All high-volume services not covered by specific fees should be factored into the formula.

Deposit items processed by a bank for collection, from banks on which deposited checks are drawn, are one of the high-volume activities. Likewise, checks paid from the account represent a volume service for which the bank should be compensated. The institution may determine volume of activity in these two services from internal records, or the bank may arrange to report to the institution the level of activity of each category of service.

Other miscellaneous services should be included in the cost factor if not compensated on a fee basis. Examples of such services are stop-payment requests, safekeeping of investments, long-distance calls on investment transactions, and clerical costs for handling bank wire or federal funds wire transfers for an institutional account.

Having determined the level of activity of each service to be covered by a compensating balance, one must then multiply each activity volume times a cost factor. Some guidance on cost factors may be gained from the tabulation of previously published data, shown in table 4.1. This type of data should be updated periodically because such costs are affected both by technological changes and by inflation. In the absence of a better adjustment factor, the consumer price index might be used to adjust prior-year unit costs. This, at least, is preferable to using previously published data without current updating.

Profit: As previously indicated, privately financed banking institutions must make a reasonable profit in order to continue rendering financial services. The profit factor in the formula may be arbitrary, and opinions may vary from 2% to 20%. An important consideration is whether the profit factor should be a percentage of cost rather than a percentage of total compensating balance. Some authors have factored the profit into a formula, with profit being a percentage of total compensating balance. If used this

TABLE 4.1

BANK UNIT COSTS FOR TYPICAL DEMAND ACCOUNT SERVICES

	Source #1	Source #2	Source #3	Source #4
Deposits	$.05			
Deposit items	.02		$.02–.03	$.02– .03
First 500/month		$.03		
Additional		.02		
Checks paid	.05		.06–.075	.05
First 500/month		.06		—
Additional		.04		—
Returned items				.25
Wire transfers	.50			1.25–2.50
Stop payments				1.00–2.00

#1 Amounts in column 1 are from the National Industrial Conference Board Studies in Business Policy, No. 99, p. 107 (published in 1961).

#2 Amounts in column 2 are from Joseph Van Fenstermaker, *Cash Management: Managing the Cash Flows, Bank Balances and Short-Term Investments of Nonprofit Institutions* (Kent, Ohio: Kent State University Press, 1966), p. 21.

#3 Amounts in column 3 are from Almand R. Colman, "Costing of Bank Services for Corporate Treasurers," *Bankers* magazine, winter 1969.

#4 Amounts in column 4 are from David I. Fisher, *Cash Management* (New York: The Conference Board, Inc. 1973), pp. 44 and 47.

way, the percentage should certainly be lower than when applied to cost. Normal business practice would seem to dictate applying a profit rate as a percentage of total account costs.

Illustration 4.1 is an example of a work sheet using the suggested formula. This work sheet is an abbreviated form of the analysis that has proved useful over a period of years at the author's institution, and this illustrative form has been used in a number of seminars on cash management at the institution.

The result of a compensating balance calculation varies with changes in reserve requirements, account activity volume, bank unit costs, and yield rates. Recalculating compensating balances semiannually, or at least annually, seems warranted; otherwise, a customer may be over- or undercompensating the bank as the factors change.

Compensating balances, once determined, should be considered to include

ILLUSTRATION 4.1

COMPENSATING BANK BALANCE COMPUTATION TO COVER SERVICES EXCLUSIVE OF LOANS

Calculation of required balance is based on a formula with the following factors:

B = Compensating balance (to be determined by computation)
R = Legal rate of reserve requirement (12% used for $10 million to $100 million demand)
Y = Normal interest-earning yield (6.0% = 91-day T-bill rate used)
P = Allowable profit rate (8% used)
C = Account cost (as calculated below)

Formula: Income that bank can earn = profit + cost of account

$$Y(B - RB) = PC + C$$

Substituting:

$$.06(B - .12B) = .08C + C$$
$$.06B - .0072B = 1.08C$$
$$.0528B = 1.08C$$
$$B = 1.08C/.0528$$
$$B = 20.454545C$$

Costs are developed and the formula multiplier applied in the following tabulation:

Bank Account Cost Factors	XYZ National Bank	Bank	Bank
Deposit Items			
Number per year (119,200)			
5¢ each on 6,000	$ 300.00		
3¢ each on excess	3,396.00		
Account Debits			
Number per year (35,100)			
8¢ each on 6,000	480.00		
5¢ each on excess	1,455.00		
Stop Payments	Fee Basis		
Number per year (60)			
25¢ each			
Investment Long-Distance Calls			
Number per year (100)			
75¢ each	75.00		
Total Cost	$ 5,706.00		
Multiplier from formula above	20.454545		
Compensating balance calculated	$116,713.63		
Compensating balance suggested	$117,000.00		

balances of all demand accounts of one institution at a single bank. For example, if account activity for a college warrants a compensating balance of $60,000 and if the college has two demand accounts, then the combined account balances should make up the $60,000.

It is important to understand that compensating balances refer to "collected" funds in a bank account, not to credited funds as shown on the institution's books of account. Deposit of a large check in the institution's bank account on one day does not represent collected funds that day, unless the deposited check is drawn on the same bank. Collection of a deposited check may take one or two days, and the customer must realize that the funds are not usable by the bank until collection is accomplished. Therefore, deposits do not become compensating balances until collection is complete.

Control of compensating balances is one good reason for consolidating bank accounts. Ten different accounts, each having normal operating ballances, probably have total balances exceeding a total justifiable compensating balance. In addition, ten separate bank accounts create quite a difficult problem in determining collected fund balances in each account, as distinct from the institution's cash account balances.

When a level of proper compensating balance is determined, the balance may be used either as a minimum daily balance or as an average daily balance. From a cash management operations aspect, use of an average balance is by far the most preferable. The balance may fall below target level on certain days and be allowed to exceed target on other days to average out over the month at the desired compensating balance level. To most banks the average balance concept will be acceptable because when one customer's balances are low, another's balances may be high. A small local bank with few major deposit accounts may have difficulty accepting the average balance concept. Obviously, the institution's cash management is facilitated and is more effective when using the average daily balance principle. Part of compensating balances are used on days when cash is short and are made up on days when there is extra cash in amounts too small to invest effectively.

The question often arises as to whether deposits of federal payroll taxes into a bank's Treasury Tax and Loan account should count toward compensating balances of the depositor. If the bank wishes to allow such consideration, the customer certainly should accept this concession. Such an allowance can only be considered as a concession intended to influence a customer to make tax deposits at a particular bank.

There are good reasons for an institution not to expect use of tax deposits as part of compensating balances. To paraphrase from Lordan, there are five reasons for excluding tax deposits from compensating balances: (5)

1. Federal taxes must be paid by specific dates. Once the tax payment is made, the payor no longer can justify any claim to the money.

2. Treasury Tax and Loan balances represent the U.S. Treasury's compensation to banks for services to the government, such as bond and security transactions and clearing of government checks.

3. The TT&L accounts are demand accounts and require reserves. Therefore, the full deposit is not usable for any compensation consideration.

4. TT&L accounts are a more costly account to maintain than a normal demand account because these special accounts require collateral to be pledged against the balances.

5. Treasury accounts may be extremely volatile. Depending on U.S. Treasury action, balances may be on hand for weeks or only a few days.

In the preceding discussion and in the formula and illustration 4.1 worksheet, the problem of compensating balance determination is regarded mainly from a customer's viewpoint. Many banks prepare an analysis of major accounts known by various terms such as account analysis or bank account profitability statement. These analyses may be made available to the customer, on request, and will indicate how the bank views the customer's account and the adequacy of balances maintained.

The form of such statements varies from bank to bank. Illustration 4.2 presents a theoretical statement showing some of the principal features usually included in the bank's analysis. It should be noted that average collected balances have the required reserve subtracted to arrive at an average available balance (A) to support account activity. Next, a detailed breakdown of account activity is shown. Rather than to show the costing of this activity, a modern trend is to show the average balance required to support each type of activity and the total activity (B). This avoids the display of unit costs for each activity, costs that are difficult to establish and often subject to question. Obviously, the bank uses established unit cost figures as a basis for determining required balances. However, this format avoids subjecting those unit costs to customer inspection. Excess or short balances are determined as the difference between (A) and (B) on the form. Obviously ABC College has maintained an average balance $94,878 higher than necessary. At 6% this would have been overcompensating the bank by $474 in that one-month period.

Much space has been devoted here to a discussion of compensating balances. Perhaps the best way to conclude a chapter on bank relations is to say, in summary:

> A banker supplies services that a customer must have for efficient cash management. Some of these services cannot be obtained any other place. The customer needs efficient bank service and should be willing to pay a fair price, either on a fee basis or by means of compensating balances. The customer should demand good service, but should treat the banker fairly. Good cash management should not involve a game of "beat the bank."

ILLUSTRATION 4.2

XYZ National Bank—Account Analysis

Account name: ABC College
Account number: 009-062-7
Period from: 08/09/76
to: 09/13/76

Average ledger balance	$256,724
Less: Average funds in process of collection	10,613
Average collected balance	246,111
Less: Reserves @ 12%	29,533
Average available balance to support activity	$216,578 (A)

Services Rendered for Available Balances	Account Activity	Average Available Balance Required*
Deposits posted	22	$ 2,200
Deposit items	9,900	79,200
Checks paid	2,900	37,700
Bank wires	3	600
Collections		
Lock box		
Account reconcilement		
Safekeeping	3	1,200
Credit investigations		
Long distance	3	600
Other: statement rendered	1	200
Total average available balance required to support activity		$121,700 (B)
Excess or (deficit) available balance: (A) – (B)		$ 94,878

*Earnings credit @ 6% per annum.

Notes to Chapter 4

1. Roger W. Hill, Jr., *Cash Management Techniques* (New York: American Management Association, Inc., 1970), p. 34.
2. James F. Lordan, *The Banking Side of Corporate Cash Management* (Boston: Financial Publishing Company, 1973), p. 4.
3. "Managing Company Cash," Conference Board Research Report, Studies in Business Policy, No. 99 (New York: National Industrial Conference Board, Inc., 1961), p. 79.
4. Joseph Van Fenstermaker, *Cash Management: Managing the Cash Flows, Bank Balances, and Short-term Investments of Nonprofit Institutions* (Kent, Ohio: Kent State University Press, 1966), p. 20.
5. James F. Lordan, *op. cit.*, pp. 83–84.

5

Cash Management of Cash Receipts

RECEIPT OF CASH IS THE FIRST STAGE OF AN INSTITUTION'S CASH FLOW. The whole process of managing cash is most important in those instances where cash is not received at exactly the time, or in the amounts, needed to cover expenditures. In fact, in educational institutions, governmental units, and local school districts, the flow of cash receipts is more uneven than in most commercial or manufacturing enterprises. This is the very situation that presents a greater opportunity for substantial short-term investing of temporarily idle cash in colleges and universities.

Illustration 5.1 presents, in the form of a bar graph, the monthly level of both operating receipts and disbursements for a medium-size public college in 1975–1976. This illustration shows that there are few months in which disbursements are matched by receipts. It is obvious that, in those periods when receipts exceed disbursements, there are funds that should be invested. What is not revealed in this illustration is that, even in months when disbursements exceed receipts, there may be substantial receipts that should be temporarily invested for days or weeks until funds are spent.

For independent institutions, having a greater proportion of funds received through tuition payments, there are probably instances at the beginning of academic terms when receipts exceed disbursements by a much greater margin than is the case for publicly financed institutions. This will present even greater investment and cash management opportunities for the independent college or university.

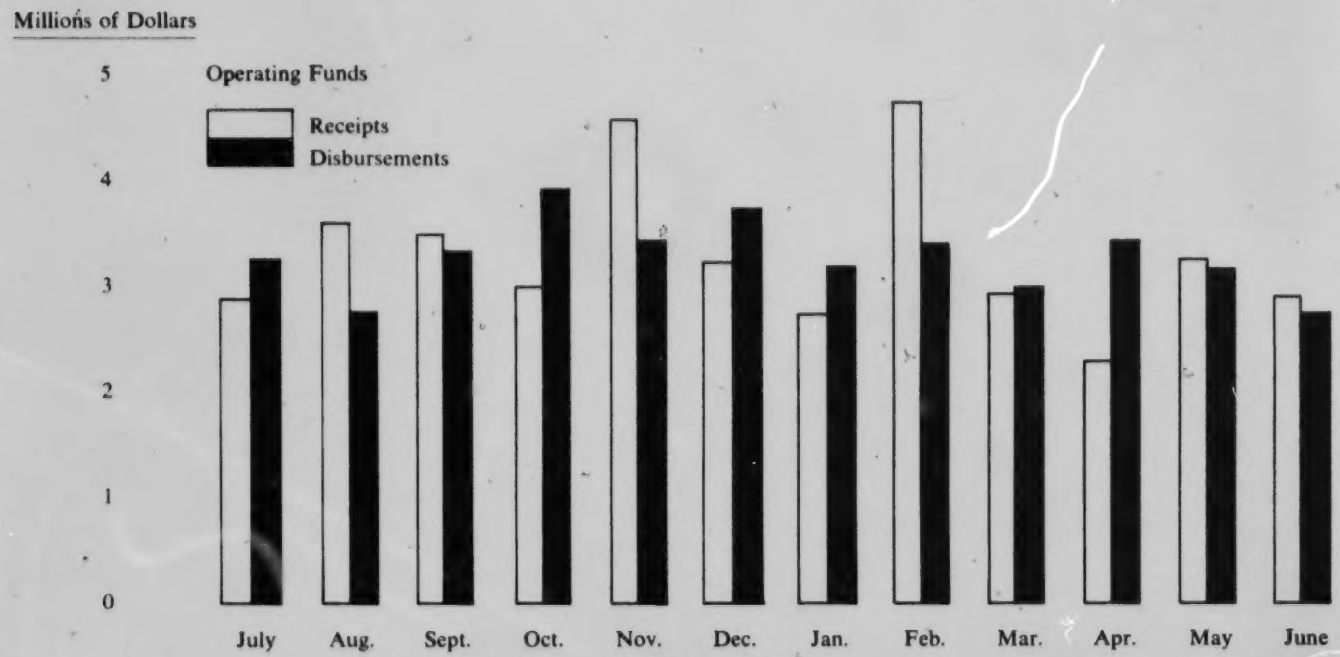
Whether cash is received through the mail, at the cashier's window, in the bookstore, or at any of the many other places from which cash flows into an educational institution, there is one key management fact of which the financial manager must be keenly aware: checks do not represent usable money for an institution until they have been deposited in a bank and enough time has elapsed to permit the bank to collect on them. In this regard Lordan states, "The simple deposit of a check does not make cash immediately available for company use. First, the bank of deposit must clear the check through the banking system and receive payment."(1)

In recent years, the banking system has greatly increased the speed with which checks drawn on distant banks may be collected. In most instances, a check can now be collected by a bank within one or two days. The more

ILLUSTRATION 5.1

MONTHLY OPERATING RECEIPTS AND DISBURSEMENTS FOR A PUBLIC COLLEGE, 1975–1976

(TOTAL ANNUAL RECEIPTS—$39,416,000; DISBURSEMENTS—$39,104,000)



quickly an organization processes and deposits checks, the sooner it will have usable funds. For example, tuition checks totaling $300,000, which are delayed one day for balancing the deposit, will cost $50 in lost investment power, at 6%.

There are four main stages in the receipt process where delays may take place. These delays defer the actual receipt of usable funds in the institutional operation.

First, billing time and outgoing mail transit time affect the date on which receipts of cash may be expected. A delay in preparing billings for amounts due, as well as the time that elapses from mailing until the debtor receives an invoice, is the first of four delays that affect incoming cash flows.

Return mail time, like outgoing mail time, is a second delay, and this is one over which the institution has little, if any, control. Preaddressed return envelopes sent with payment requests may avoid certain delays often involved with hand-addressed mail that does not carry zip code designations.

Third, internal processing time, after the institution receives mail or accepts payments at a cashier station, is a point of delay over which control can be exercised. An improvement in internal processing time ultimately can increase an organization's pool of cash available for short-term investment. Speeding up mail-sorting time is the first point of control. Too often incoming mail may lie unsorted for hours, which may ultimately delay the deposit of checks by a whole day. Holding checks in accounting or cashier departments until recording problems are resolved is also an internal delay. If validating machines in cashier departments remain open too long in batch processing, trouble is likely. This is especially true where checks must be held until the batch is reconciled. A $500,000 batch that does not balance may cost $75 for a one-day deposit delay. How much better to have ten batches of $50,000, where nine of them can be forwarded for bank deposit and only one small amount delayed. With small batches, it is likely that errors will be found more rapidly. In that event, deposits may not be delayed at all by cash balancing problems.

One method for accelerating bank deposits is the "lock box" system. Inasmuch as this method has only somewhat limited application to college operations, an explanation of its use has been deferred to the end of this chapter.

The fourth stage of delay is in bank collection time after a deposit is made. As previously stated, banks now accomplish collections against deposited checks in one or two days. If most checks deposited are drawn on banks in adjoining Federal Reserve districts, an institution's bank may be able to allow one-day availability on all deposits. The timing of an institution's deposits is all-important. A deposit made after cutoff time at a bank teller's window in the afternoon is automatically delayed one day because the bank

will not process that deposit until the next day. Evening or night depository deposits are the same as those made next day.

Special handling of large-denomination checks received is effective for accelerating the flow of cash to the bank for collection. Checks from the U.S. Treasury or from a state department of treasury may be grant funds of substantial size, and they merit special handling. Likewise, acceleration of deposits of monthly allotment checks for a public institution's state allocation can be productive.

Referring to the tabulation of questionnaire replies as reproduced in appendix A, one finds that nearly three-fourths of the institutions in this nationwide survey reported that they give special handling to large checks. Two-thirds of those institutions give special handling to checks of less than $100,000. This shows close cash management on the part of institutions of all sizes. In fact, one-third of the larger institutions (over 20,000 enrollment) give special handling to checks of less than $100,000.

Cooperation of mailroom personnel, who sort the early morning mail, can be helpful for this purpose, and the importance of this assistance may often be overlooked. Window envelopes, especially those of the departments of treasury, are easy to recognize; if these are separated in the mail sorting, special handling of large checks is improved.

There are special ways in which monthly state allotment checks for public institutions may be accelerated. Some treasury departments will allow messengers to pick up the warrants and convert them to checks, thus saving one day in collection time and eliminating one or two days' mail time. At 5½% the saving of two days' collection time on $1 million is $305. This helps justify the cost of special arrangements. Where regulations require mailing of warrants by the state treasurer, mailing directly to an institution's bank—and subsequently a messenger arrangement to exchange the warrant for a check at the department of treasury—has been used effectively in some instances.

As previously mentioned, one method for accelerating deposits into the bank account is the lock box system. This method, extensively used by commercial and retail businesses, seems not to be as applicable in college and university operations; however, the institutional financial manager should be familiar with it. There may be situations at some institutions where lock boxes should be considered.

A lock box is a post office box assigned to a customer of a bank and to which that customer has all or certain mail remittances directed. The bank empties the box one or more times each business day and credits the customer's account for all checks removed from the box.

Recording on the customer's books and the accounting reconcilements take place after deposit of the checks is accomplished. This avoids the delay

often experienced when deposits are internally delayed by balancing procedures.

In an educational institution, lock boxes may be most useful for uniform payments, such as tuition, where problems of reconcilement and the need for the actual check for cashiering purposes are at a minimum.

Paraphrasing Lordan, four important advantages of lock box operations are: (2)

1. Fastest possible check collection.
2. Relieves personnel of opening mail and preparing bank deposits.
3. Reduces credit risk through faster notice of dishonored checks.
4. Improves audit control, especially in a small operation, where the same employee responsible for preparing invoices would also have access to cash receipts.

With regard to the efficiency of having receipts routed to a lock box, Hill states, "Receivables checks can be processed before the accounting function takes place rather than sometime afterward" and "funds are available at least one to three days sooner than under ordinary corporate processing." (3)

Lock box service does have a substantial cost involved and it is generally concluded that the individual checks processed through a lock box should average $1,000 or more in amount. This size is necessary to cover normal costs of processing. It must be realized that clerical costs, eliminated at an institution, are costs to the bank that lock box fees must cover.

Studies in Business Policy, No. 99, by the National Industrial Conference Board in 1961 stated that a study of twelve lock box systems revealed that the minimum cost per check processed was 10¢, and where additional services were required, the cost was as high as 25¢ per check. Advances in technological methods for processing may tend to hold down increasing costs, but it must be realized that lock box operating costs are primarily clerical processing salaries, which have increased greatly in recent years.

If a bank were to offer lock box service at only 15¢ per item processed, and if deposits were thereby accelerated by one day, the average check would need to be nearly $1,000 if money is worth 6%.

As shown in the tabulation of questionnaire replies reproduced in appendix A, less than 10% of institutions replying use lock box systems. Tuition, loan repayment, and housing payments are the main lock box uses, and of those institutions using lock boxes, the greatest number routed all receipts through them.

Before using a lock box system, an institution should consider whether the savings justify the cost. Savings should include clerical cost and the value of accelerated cash flow. However, if checks received average less than $1,000, it is questionable whether lock box service can be justified; it may be

more logical to improve the internal processing time of the institution's own staff.

Before leaving the general subject of cash receipts, the reader's attention is directed to the problem of NSF checks (nonsufficient funds). These represent prior receipts that are now canceled because the checks were not collectable by the banking system. Where NSF checks represent any large sum, it behooves the cash manager to insure that prompt action is taken to attempt to recover such lost deposits. It must be recognized that NSF checks, while held, represent a pool of potential resources that cannot be used by an institution until collected.

In summary, efficient cash management of receipts consists of whatever can be done to improve the rapidity with which an institution realizes "collected" bank balances. Improved timing of cash receipts increases the pool of investable cash, which then is made productive by the investment processes described in part 2.

Notes to Chapter 5

1. James F. Lordan, *The Banking Side of Corporate Cash Management* (Boston: Financial Publishing Company, 1973), p. 10.
2. *Ibid.*, p. 18.
3. Roger W. Hill, Jr., *Cash Management Techniques* (New York: American Management Association, Inc., 1970), p. 28.

6

Cash Management of Cash Disbursements

RECEIPT AND DISBURSEMENT OF CASH ARE THE TWO CONTROL FUNCTIONS affecting the cash flow of any organization. Although both are important phases of cash management, the control of disbursements probably has the greater potential for maximizing the pool of cash from which short-term investments are made.

The foregoing statement is made because there seems to be more room for improvement in established disbursement practices than in other normal cash management functions. Changes such as making maximum use of disbursement float have become increasingly important in the last twenty years. The development of this concept is so recent that many financial managers are still not sure of its legality. So important is the concept of properly using disbursement float that a large part of this chapter is devoted to a detailed discussion of the legality, methods, and effect of its correct management.

The accounts payable function creates disbursement checks drawn on a demand bank account. Preparation of checks, control over their release, and funding of the demand account are all phases that merit detailed consideration in cash management.

One of the accounts payable functions is preparing payment of invoices for goods and services received. Taking offered cash discounts for payment within ten days, or other specified time interval, is a prime rule of good cash management. If a cash discount of "½% in 10 days" is lost and payment is made in "net 30 days," cash is retained an additional twenty days. That cash must be invested at 9% merely to equal the lost discount. Under most conditions, an investment yield high enough to offset even the lowest of forfeited cash discounts is not possible. Taking all cash discounts offered is probably the most productive way of using institutional cash.

Prepayment of invoices, on the other hand, is perhaps the most nonproductive use of cash. Prepayment does nothing to improve an organization's credit standing, and it uses funds that could otherwise be invested. To maintain an institution's image as the best of credit risks, payments should be made on due dates, but not before.

Experience indicates that college and university accounts payable departments often operate on a system that is best described as indiscriminate bill-paying. Rather than establish periodic payment dates for "net" invoices,

some institutions apparently pay an invoice whenever it is cleared or approved for payment. A single supplier may be sent as many as six or eight checks each month instead of the one or two that would be sent under a controlled payment date method.

In regard to prepayments, Lordan states, "Indiscriminate bill paying is an unnecessary drain on cash resources and is costly. Paying a $10,000 bill with terms of net/60 (net amount due in sixty days) in fifteen days, rather than taking the full sixty, would cost a company $75, even if it earned only 6% ($10,000 × .06 × 45/360)."(1)

One payment, which often is regularly made before it is required, is the deposit of withheld payroll taxes. Federal deposits need not be made on payday, and this may also apply to state and local tax deposits. For example, when the federal deposit exceeds $2,000, regulations require deposits on the third banking day after the 7th, 15th, 22nd, and end of month for federal withholding applicable to payrolls paid in each of the quarter-monthly periods. Only 90% of total tax need be deposited on the specified dates to fulfill deposit requirements. The 10% balance may be deferred in accordance with deposit requirement instruction #4 for forms 941 or 941E. State and local tax deposits may also have delayed deposit times. For example, some local taxes may not be required until the end of the first month following the end of each calendar quarter. Delaying these various tax deposits until required dates can potentially add substantial amounts to funds available for short-term investment. For example, withholding tax of $100,000 per biweekly payroll, if delayed one week on deposit, would earn $3,000 a year at 6% per annum.

Assuming that one has established efficient payment schedules for accounts payable operations, the cash manager must be concerned with funding the bank account to cover the disbursement checks. This concern should occur before the checks are released from the institution. There are three time frames that may apply to funding of the bank account. From a cash management viewpoint these time frames range from the unmanaged and least efficient to incremental funding, the most productive method.

Too often, in the past, institutions allowed idle cash to build up in demand bank accounts against the day when disbursement checks would clear the bank account. There was no management problem under such a procedure, and likewise there was absolutely no productiveness from large pools of idle cash. When payment checks were prepared, they could be released because cash was already in the bank account. It may have been there for weeks or even months.

An alternate to the above unproductive and unmanaged system is "time of release" funding of the demand bank account. Under this system cash is kept invested until disbursement checks are mailed. At that time cash is

shifted from interest-bearing investments or savings accounts to the demand account to cover the checks being mailed. Obviously, this system takes a minimum amount of management and does produce some investment income.

The "incremental funding" method, which uses the disbursement float, has the potential for keeping additional hundreds of thousands of dollars productively invested. To be done properly, and legally, this method requires some level of continual management.

Incremental funding is sometimes referred to as "playing the float." This nonbusinesslike term undoubtedly originated because the process is much like a challenging game such as chess, and can be more fun than most business functions. Incremental funding is a more businesslike term for "playing the float." If one wishes to include the word "float," then the terms "using the float" or, more descriptively, "working the float" seem to better describe what really takes place.

In considering the proper use of disbursement float, one must consider its legality, since this is often questioned. First, what is disbursement float? In terms of time, float is the number of days elapsing between the time a disbursement check is released and the time it is presented for payment to the bank on which the check is drawn. In terms of money, it may be hundreds of thousands of dollars that the institution can put to productive use. The amount, of course, depends on the average amount disbursed by an organization. In money terms, Lordan defines float by saying, "It is the sum of a company's outstanding checks at any moment in time."(2)

The legality of using float may be questioned by some on the basis that it is illegal to have an issued check presented against an account in which funds to cover the check are not on deposit. It is important to recognize that any illegality of releasing a check without funds in the account arises not at the time the check is released, but at the time the check is presented for payment. The legality of incremental funding then depends on an ability to know the minimum time in which a released check can clear against the bank account.

Legality also depends on intent. In this regard Fisher writes: "Statutes covering the writing of checks against insufficient funds vary from state to state. Some states are said to have codes forbidding it. But most reportedly have laws similar to those of the State of New York, where conviction requires proof that the check's issuer intended fraud and that he has not, after notified of the overdraft, covered it within ten days.

"Actions against corporations for playing the float are practically unheard of. To a great extent, this is because its general acceptance supports the universal presumption that corporate treasurers do it, without fraudulent intent."(3)

If float is not used by an institution, the banker will make investment use

of any float not used by the institution. In most instances the bank will thereby be overcompensated for servicing the customer's account. The banker should not be criticized for using what the institution fails to use.

It is interesting to note that, in spite of some past uncertainty about the legality of incremental funding, a majority of institutions of higher education may now be using the float to their own advantage. Answers to the questionnaire, as tabulated in appendix A, indicate that nearly 54% of institutions replying were incrementally funding disbursement accounts. In all sizes of educational institutions, except the largest enrollment category, more than half the respondents use incremental funding. However, a much larger proportion of private institutions (70 of 108, or 64.8%) use incremental funding as compared with public institutions (41 of 98, or 41.8%).

The business officers of one of the country's largest publicly supported universities advised the author that they did not use disbursement float because the administration and their auditors question the propriety, if not legality, of using the float. Knowing that failure to use the float probably overcompensates the bank two or three times the required amount, one might ask "If your bank charged for services on a fee basis, would your auditors condone paying three times the invoiced amount?" Of course the answer would be no.

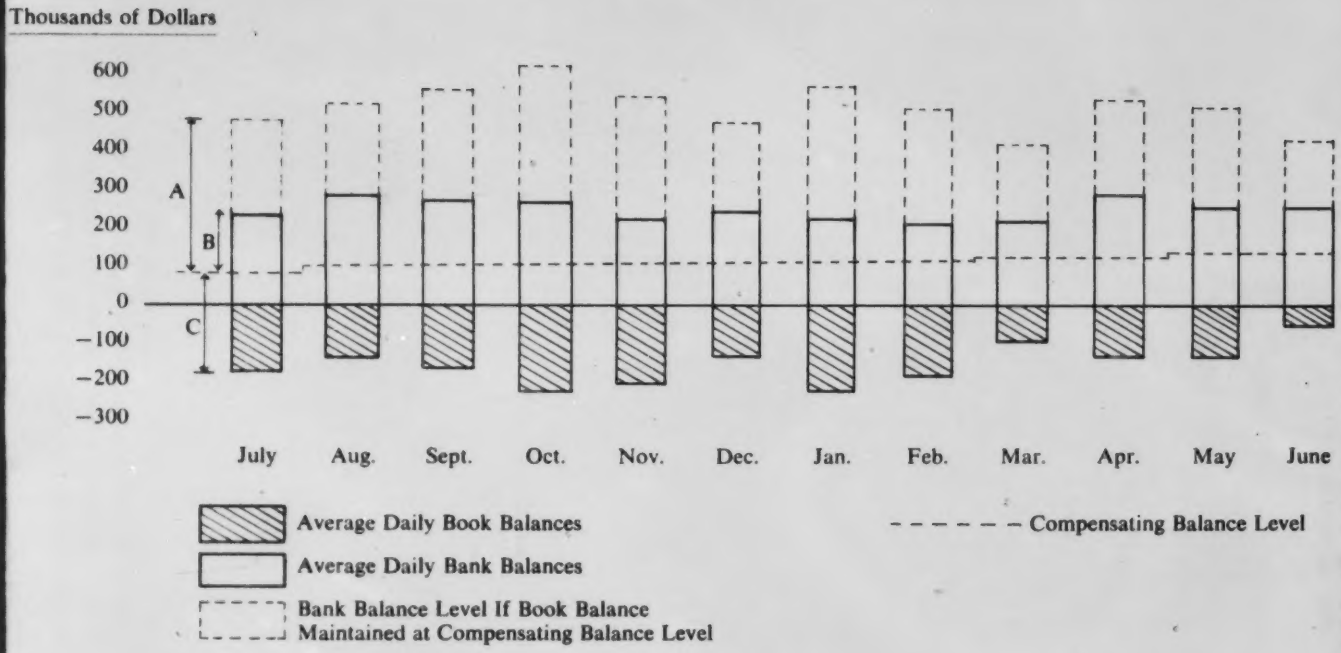
An example of the effects of using disbursement float is shown in illustration 6.1. The data in this illustration represent the actual experience of a medium-size public college. The cross-hatched bars on the negative side of the zero baseline in every month indicate that daily average book balances of cash accounts were in a minus or negative balance position every month for this institution. The solid, but unshaded, bars above the zero baseline indicate the average daily collected bank balances. These were in excess of $200,000 each month in spite of the substantial negative book balances averaging minus $100,000 or more in all months except June.

The dotted bars in the illustration indicate the average level that collected bank balances would have reached if book balances had been maintained at the desired compensating balance level, shown as a horizontal dotted line at approximately the $100,000 level. This illustrates the extreme overcompensation to banks that may result from maintaining book cash balances at the compensating balance level. Area A on the graph represents the extent of such excess average daily bank balances. Area B represents excess balances in the bank due to unused float or inability to safely pull daily book balances to a lower level. Area C represents the amount of disbursement float actually used and invested. The daily average of float used at this institution, during the year for which data are plotted, was approximately $405,000. At 6%, such use of float would produce $24,300 additional annual resources for the institution.

ILLUSTRATION 6.1

PUBLIC COLLEGE AVERAGE DAILY BANK AND BOOK BALANCES, 1975–1976

(ALL DATA ON COLLECTED FUNDS BASIS)



In using disbursement float, three things are of prime importance. First, the institution's records should provide for careful monitoring of the bank account. Second, and related to the monitoring of bank account balances, only collected balances rather than ledger cash balances should be used. Otherwise, an institution may be drawing on uncollected funds. Third, and undoubtedly most important, is an accurate knowledge of clearance time on all major checks. The importance of this warrants further discussion of some available methods that may be used. Of course, a cash manager may develop unique methods for individual circumstances.

Amount and length of float in many large commercial organizations and in some of the large educational institutions are determined on a percentage-of-batch basis. This involves an extended study of what percentages of all batches of disbursement checks clear each day after release. This requires knowing the exact release date and studying all canceled checks to determine the dates on which bank clearance occurred. It is most useful to use only banking days rather than calendar days. From this elapsed time data, percentages can be determined that, when applied to total dollars in a batch of released checks, will indicate amounts likely to clear the bank on each subsequent day. Obviously, this system is best adapted to operations where all checks are of fairly uniform amounts. Unusually large checks in certain batches make the percentage-of-batch method less satisfactory.

Payrolls are particularly well adapted to percentage-of-batch methods. It might be found, for example, that 25% of payroll clears on the first day, 40% on the second day, 25% on the third day, and 10% after the third day. Such percentages, once determined, change only slowly over time. Using the above percentages, an institution might decide to transfer funds into the payroll account on a schedule of 28% on the first day, 42% on the second day, 25% on the third day, and the balance on the fourth day. This would be equal to retaining $535,000 for one day on a $500,000 payroll. At 6% the investment income would be $89 more than if the payroll account were funded entirely on the first day. It is interesting to note on the questionnaire tabulation in appendix A that over 64% of the institutions are incrementally funding payroll accounts. A method similar to percentage-of-batch incremental funding involves the use of zip code information. A study determines the relation of bank clearance time to the zip code address of payees. This method also assumes rather uniform check amounts and ignores the fact that certain payees habitually delay the internal processing of checks received.

A method for determining both float time and amount on a more exact basis is the individual check method. This method takes into consideration large-denomination checks as well as peculiarities in internal processing by certain payees. The individual check method involves monitoring all checks

exceeding a previously determined amount. Monitoring requires knowledge of the exact release date of individual checks and maintenance of a log showing payee, location, check number, check amount, and date released. When canceled checks are returned from the bank, it is necessary to determine, for each logged check, the number of banking days that each check was outstanding. From these data a card file on each payee is prepared. Once such a file is established, future large checks mailed to a payee would be funded or covered in the bank account on the date corresponding to the shortest number of banking days that previous checks, to that same payee within a six-month period, cleared the bank account.

Only after one has operated under this system will it be realized that this is not as complicated or nearly as time-consuming as the description would suggest. For example, at the author's institution all checks over $1,000 are monitored. Although this involves only 3.1% of all accounts payable checks, exclusive of payroll, investments, and bank transfer checks, 79.6% of disbursed money ($21.3 million) is controlled.

Using the above system, one employee spends an average of ten minutes a day preparing the log. At month-end about two hours are devoted to determining clearance time on canceled checks returned from the bank. An additional two hours may be involved in transferring float information to individual payee file cards. A maximum of eight hours a month, or twelve days a year, is involved in maintaining float data on $21.3 million. If these data are used to gain only one day by incremental funding, at 6%, the value for that one day is $3,550. This represents a fine return for twelve days of one employee's time.

One caution needs to be observed with regard to using the above system. If the amount of a check being released is more than the established compensating balance in the bank account, funding for that check should take place on the earliest date that the check can possibly clear against the bank account. This timing should be followed regardless of the historic float data, which may indicate that checks to that particular payee have always taken longer to clear.

On the other hand, if a check is for less than the compensating balance, funding may be extended to the longest time in which experience shows that a check to this payee has cleared in the previous historic period of float records.

Businesses usually find that, by mailing checks to general suppliers on Wednesdays, the length of float on most checks can be extended to the following Monday, a total of five additional calendar days. But payments by colleges and universities may be more localized than for business in general, so a Thursday mailing may be more appropriate in assuring that checks will float through the weekend.

In considering the use of float, it is well to consider that the length of float time depends on (1) outgoing mail time, (2) payee processing time, and (3) banking system clearance time. It may be fairly easy to estimate mail transit time. Banking system clearance is now accomplished in one or two days from most locations. Payee processing time is the unpredictable and entirely uncontrollable factor. For example, a check for $60,000 might be drawn against an account in which a compensating balance of $50,000 is maintained. If two days' mail time and one day for bank clearance are involved, the account should be funded three days after release of the check. Then, if the payee takes ten days to deposit the check after it is received, the bank account will be funded ten days before legally necessary. However, the cash manager is unable to control or use that extra ten-day float. To repeat the basic rule: under the individual check method for estimating float time, if each check is for less than the compensating bank balance, it is normally safe to defer funding by the number of days that experience of a historic float period indicates each check will be outstanding. For individual checks larger than the compensating balance, funding should take place in the minimum number of days that the check can possibly take to clear against the bank account.

Although data may be accumulated on all checks in excess of specific amounts under the individual check method for float time determination, it may be practical to defer actual funding only on individual checks that are much larger than the specific amounts on which float data are maintained. The balance of a batch of disbursement checks, after consideration of large individual checks, should be funded in the combined minimum mail and bank clearance times, usually two days.

To use float, it is advantageous to have a minimum number of disbursal bank accounts. If all disbursals are made from one bank account, the float can be used to a maximum degree. All volume of activity in one account will warrant a larger compensating balance than if spread to three or four banks. Larger compensating balances mean that funding of larger-denomination checks may be extended to the full clearance time indicated by experience. When more than one bank is used for disbursements, knowledge of the payee deposit point may be beneficial in determination of length of float time.

The advantage of incremental funding may be illustrated by the following hypothetical example. Assume ABC University maintains a $50,000 compensating balance at XYZ National Bank. On Thursday, ABC University is prepared to release a batch of disbursement checks totaling $182,000. In that batch are some large checks that experience shows will not clear in a minimum of two days' mail and bank clearance time. A quick survey of the batch before release shows the following content:

	Amount	Float time	Dollar/days funding is delayed
Utility payment	$ 43,000	3	$129,000
Supplier	19,000	5	95,000
Supplier	31,000	5	155,000
Contractor	37,000	6	222,000
Insurance	18,000	4	72,000
Small checks	34,000	2	68,000
	$182,000	20	$741,000

From this breakdown it is apparent that funding for this batch could be $34,000 two days after release, $43,000 on the third day, $18,000 on the fourth day, $50,000 on the fifth day, and $37,000 on the sixth day after release. The dollar days saved amount to $741,000. At 6% this has a value of $123.50. At a medium-size institution with disbursements approximating $18 million a year (exclusive of payrolls) the value of this incremental funding would be over $10,000 a year. If the cash manager spends an hour a day arranging incremental funding, the $10,000 produced would be an excellent return for time spent.

It is important to realize that, in developing float information and in the incremental funding of disbursement bank accounts, it is essential that the exact date of release of checks is known. If the cash manager is not given responsibility for release of all checks, he must be provided with reliable information as to when checks are released. A release prior to the expected date creates the possibility of an illegally overdrawn bank account.

Considerable space has been devoted to a discussion of incremental funding because it can be one of the more productive cash disbursement management tools. Three other methods of disbursement management that merit comment are zero-balance accounts, sight draft payments, and distant disbursal accounts.

A zero-balance account is one that is funded only as checks, drawn on it, are presented for payment. Funding may be from liquidated investments, interest-bearing accounts, or from another consolidation demand account. Zero-balance accounts have special use in control of certain types of disbursements such as dividend payments. However, costs of operation may make the investment productiveness of such accounts questionable. Zero-balance accounts are a costly banking operation and banks may charge on a fee basis for such accommodations.

Sight drafts to cover disbursement payments are sometimes considered a possibility for maximizing use of float time. "Payable on sight" drafts are different from regular checks in that funding is legally not required until twenty-four hours after drafts are presented for payment. This enables the

maker to keep funds invested until the payee has received the draft, deposited it in his bank for collection, and the payee's bank has cleared it to the maker's bank for collection. At that point, the bank on which the draft is drawn notifies the maker, and the maker has twenty-four hours in which to cover the draft. When the draft is honored, funds return to the payee's bank and the payee finally receives credit from his bank four or more days after he first presented the draft for collection. Obviously, this is less than satisfactory for most payees. The greatest deterrent to the use of sight drafts for paying bills, however, is the substantial charge made by most banks against the payee for collection processing. A survey of five banks in 1975 indicated charges of from one to five dollars each on small drafts of under $2500. When drafts were for $10,000 or more, fees ranged from five to ten dollars each. These charges generally make payees unwilling to accept payment on a sight draft basis.

Distant disbursal accounts are a method for extending float time on checks issued. If suppliers on the east coast are paid with checks drawn on a west-coast bank, the float time will be extended by an extra day or two because of increased bank clearance time. This method for extending float time probably has more possibilities for commercial organizations with nationwide operations than it does for educational institutions with more local transactions.

Brief mention should be made of construction financing and payments. Funds held for construction expenditures should be held in short-term investments. Architects or contractors will supply estimated payment dates based on construction progress schedules. From these payment schedules funds may be invested to mature on the dates major construction payments are due. These investments can be selected from the wide variety discussed in part 2. To cover small scheduled payments and to cover payments in excess of schedule, some of the construction funds should be invested in very liquid fo[illegible]—preferably savings account deposits or savings deposit receipts. Treas[illegible]ll investments are especially useful for unscheduled payments of $1[illegible] or more.

Notes to Chapter 6

1. James F. Lordan, *The Banking Side of Corporate Cash Management* (Boston: Financial Publishing Company, 1973), p. 32.
2. *Ibid.*, p. 33.
3. David I. Fisher, *Cash Management*, Conference Board Report No. 580 (New York: The Conference Board, Inc., 1973), p. 34.

7

Pooling Resources and Short-Term Investments

THIS CHAPTER WAS INITIALLY PLANNED AS THE FIFTH CHAPTER IN PART 2, on investments, since part 2 originally seemed like the logical place for a section on pooling. But it became apparent to the author, in writing the chapter on cash flow, that an understanding of pooling of cash resources is required before pooling of investments is practical. Furthermore, all phases of cash management are much simpler if the philosophy of pooling of resources is first accepted. It was also apparent that some of the contents of the chapter on cash flow are less meaningful if an understanding and acceptance of the philosophy of pooling of resources do not precede that subject. Hence, pooling needs to be understood before further discussion of either cash management or short-term investing.

In 1971 an article by the author on pooled funds operations stated that acceptance of the pooled funds concept was responsible for more than a 50% increase in the amount in the short-term investment portfolio when the pooling theory was first adopted at the author's institution.(1) At that time the feeling at the college was that the pooling principle was advantageous primarily in its improvement of the short-term investment program. Subsequent refinement of the cash management program has made clear the fact that most improvements and simplifications of daily cash management operations were possible primarily because resources were pooled. In fact, it is now realized that pooling was responsible for many accomplishments in the overall program. Such assertive statements warrant a discussion of the philosophy of pooling, and what it is.

As an outgrowth of fund accounting under manual accounting methods, there seems to be a widespread belief that each fund should have a separate bank account. Fund accounting calls for each major fund group to be independent of each other group. Each is self-balancing and related to the trust concept. It is easy to understand, then, why financial managers of colleges have tended to use separate bank accounts for the separate fund groups. With the introduction of electromechanical bookkeeping, followed by electronic methods and computerization of most bookkeeping operations, it became apparent that the principles of fund accounting could be observed

while having all cash of all funds in a single bank account. Any effective accounting system, whether manual or computerized, should have the record-keeping capability to accurately reflect "balanced fund" accounting even though all cash is in a single bank account. A single check or deposit should be chargeable or creditable to the ledger cash account of any major fund group, or partially to the cash accounts of any number of separate major funds. Cash is a resource that can be accurately accounted for on the internal records; this should be possible without the need for segregation of the actual dollars of receipts or disbursements into separate bank accounts. The old "cigar box accounting" concept, of cash of separate funds in separate bank accounts, is a handicap to efficient cash administration. The separate control "boxes" in modern operation are the cash accounts on the accounting records rather than separate bank accounts.

Having accepted the philosophy of accurately controlling cash without separate bank accounts for each major fund, one needs a way to similarly pool investments. Efficient pooling of investments requires a method for investing working capital without regard to which fund owns the cash being invested. This requires a method for pooling all short-term resources for investment without disturbing the status of cash accounts of the various funds from which cash is invested. Both cash management and short-term investing are simplified when investment of cash from several or all major fund groups is possible without concern for the origin of the cash and without reflecting investment transactions in the accounts of any major fund groups.

Nine guidelines were originally proposed for designing a system for complete pooling of all cash resources and investments at the author's institution. A satisfactory pooling arrangement should accomplish all of the goals stated, as follows:

1. Make investment possible in such a manner that invested funds need not be designated as being made for or belonging to any specific fund.

2. Pool all available investment resources so that amounts to be invested can be in denominations large enough ($100,000 or more) to secure maximum rates of return and to minimize investment service costs and record-keeping detail.

3. Permit the free cash resources of every fund to be *equally* and *continuously* invested to a maximum extent.

4. Insure equitable allocation of the income from invested funds to every major fund group and to required individual funds within each major fund.

5. Permit selling or liquidation of investments at any time to cover either expected or unexpected disbursements of any fund without regard to which fund's investments are being sold.

6. Facilitate the control of all bank accounts at or near the required compensating daily balance deemed necessary to compensate the banks for the account services and, with the flexibility produced by item (5) above, be able to increase available cash in bank (reduce investments) at any time in order to maintain bank balances and to cover large or unexpected disbursements of any fund.

7. Simplify recordkeeping relative to all investment transactions so that no concern is necessary as to which fund's investment is bought or sold.

8. Reduce the need for accurate projections of cash flows of individual funds.

9. Accomplish all of the above without violating the principles of self-balanced funds on the accounts of the college at all times and without in any way complicating the account recordkeeping.

A simple solution to all of the above goals was developed at the author's institution. Although modifications may be appropriate at other institutions, the solution described here has proved to be completely effective in nine years of operation.

An interim fund, called the Investment Fund, was originated as the basis for pooled resource and investment operations. Fund accounting principles were not violated by creating this separate fund. The Investment Fund is merely a bookkeeping aid; it is not a statement fund. Before annual statements are produced at the end of each fiscal period, the Investment Fund is completely closed out to the other major fund groups by a method described later. It is essential to understand that the Investment Fund, here described, is merely a recordkeeping aid, self-balancing and temporary so that it never appears on a financial statement.

Acceptance of the principle that each cash account need not represent separate bank accounts is the premise on which the Investment Fund theory is founded. Any number of cash accounts can represent the cash in a single bank account. Each major fund can draw on any of the three demand accounts maintained by the institution. Likewise, the cash of any fund can be deposited in any of the three demand bank accounts. Each major fund therefore has three cash accounts: one for cash in each of the three banks in which it may have money. The cash of each major fund group is represented by the sum of its three separate cash accounts. A single cash account may have a credit balance, and that fund's cash is not overspent unless the sum of all cash accounts of that fund is negative. Likewise, a bank account is not overdrawn when one or more cash accounts representing cash in that particular bank is negative. Only if the net balance of all cash accounts for cash in a specific bank is negative would the bank account book balance be

overdrawn. This situation can be illustrated by the following hypothetical data with only five major funds and three bank accounts for simplicity:

	Cash in Bank #1	Cash in Bank #2	Cash in Bank #3	Total Cash in Bank
Fund 1	$ 50,000	$25,000	$(15,000)	$ 60,000
Fund 2	(10,000)	5,000	50,000	45,000
Fund 3	(20,000)	15,000	35,000	30,000
Fund 4	15,000	(5,000)	20,000	30,000
Fund 5	75,000	30,000	(50,000)	55,000
Total	$110,000	$70,000	$40,000	$220,000

In this table there are fifteen separate cash accounts, that is, one for each of five funds in three separate banks. The total cash of each fund is shown in column 4, while cash in each bank is shown on the bottom line. There are negative cash accounts in all funds and for each bank, but no fund has overspent its cash nor is any bank account overdrawn.

To operate under a pooled resources plan, the temporary Investment Fund is created at the beginning of the fiscal year and closed out at the end of the fiscal year. The accounts of the Investment Fund are limited to:

1. One cash account for each separate bank.
2. A separate investment account for each type of short-term investment in the portfolio, such as government securities, certificates of deposit, commercial paper, bankers' acceptances, etc.
3. One pooled investment income account.

To start the pooled operation at the beginning of the fiscal year, each major fund "sells" its securities to the Investment Fund. This is merely a bookkeeping entry that debits cash of each major fund and credits each major fund's investment security accounts with book value of investments. Also, the offsetting entry in the Investment Fund is a credit to cash and a debit to investments. The total cash of all funds in each bank does not change, since for every debit in a major fund group cash account of a particular bank, there is a credit in the Investment Fund cash account for that same bank. Investment accounts reflect a similar situation wherein all individual investment accounts of each major fund group "zero out" and the total values are reflected in the investment accounts of the Investment Fund. At this point, and throughout the entire accounting period, it should be noted that cash accounts of individual major fund groups represent both cash and a claim for cash or investment values from the Investment Fund.

From this point, July 1, the operation throughout the year is quite simple.

Whenever any bank balance is greater than desired, an investment is made. This results in a debit to investment account and a credit to a cash account for a specific bank in the Investment Fund accounts only. Cash accounts of major fund groups are unaffected.

Conversely, if cash in bank is lower than desired or if an unexpectedly large disbursement needs to be made, an investment is sold and the accounts of the Investment Fund are debited for cash and credited for investment value sold or matured. Any value realized in excess of investment cost results in a credit to the investment income account of the Investment Fund. Also, any interest payments received from time to time are a credit to the investment income account and a debit to a cash account of the Investment Fund only.

All investment entries throughout the year are entirely in the Investment Fund accounts. Accounts of the regular major fund groups are unaffected; their cash accounts represent "cash or a claim for cash" throughout the year.

Each major fund's share in pooled investment income is in proportion to its available cash. Because cash accounts of the major fund groups vary considerably in amount from day to day and week to week, the author believes that the averages of month-end cash balances are not truly representative of each major fund's true available investable resources or earning power throughout the year. In other words, the participation of any major fund is in proportion to its continuously available cash values, and this amount varies widely as money is received and disbursed daily.

Because month-end cash account balances do not reflect the wide interim day-to-day fluctuations, a fund's participation in the pool and in the investment income of the pool should be in proportion to average daily cash balances. To have accurate daily cash balances of all 24 individual cash accounts (3 banks × 8 major funds) presents a problem that can be solved by a compromise, namely, by agreeing that the average of weekly cash balances is sufficiently representative to use as the basis for allocating investment income back to all major participating funds at year-end.

A separate computer program supplies the above-mentioned weekly cash balances of all major funds; other institutions may not desire this degree of exactness in income allocation. In that event, month-end cash balances, as normally supplied by regular accounting procedures, would be used.

Investment Fund operation presents no month-end closing problem, since each major fund is continually in balance and its cash accounts represent cash or a claim for cash or investments from the Investment Fund. For monthly bank reconcilement purposes, the book balance for any bank is the net of the cash account balances for that bank in all regular major funds and in the temporary Investment Fund.

If an official interim statement of the financial position is required anytime before the year-end closing, the Investment Fund would be closed to the respective major funds so that cash and investments of each major fund could be separately reflected on the statement. Interim investment income to date would be closed to participating funds in proportion to average cash balances to date for each major fund. Closing of the Investment Fund would be done like the year-end closing described below.

The Investment Fund is not a statement fund, but an interim recordkeeping vehicle to facilitate day-to-day investment operations without affecting the major fund groups. Therefore, at year-end or any other time that a statement of financial position might be desired, the Investment Fund must be closed out.

The first step of closing the Investment Fund is to allocate to each major fund group the investment income of the Investment Fund. This allocation is in exact proportion to the average cash account balances of each major fund. This closing entry is a debit to income and credit to cash of the Investment Fund, and a debit to cash and credit to investment income of the major funds.

After allocation of investment income, the Investment Fund is closed by allocation of investments from the pool to major fund groups. As stated before, cash accounts represent cash and a claim for cash or investments. Therefore, the closing entry can be more or less arbitrary in the allocation of either cash or investment value to each major fund.

The closing entry on Investment Fund accounts is a debit to cash (for total cash account credit balances) and a credit to investments for total debit balances of investment accounts of the Investment Fund. The major fund groups receive a debit to investment accounts and offsetting credits to cash accounts in any desired amounts as long as the total cash credits and investments debits in all major funds equal the offsetting debits and credits closing the Investment Fund.

At this point, each fund's cash accounts represent only cash in the banks. Each fund has some share of investments and has received its equitable share of total investment income that resulted from a continually changing amount of invested resources throughout the fiscal period. For statement purposes there is no Investment Fund, as it has been closed to applicable major funds.

This mode of operation permits maximum investment of all resources and each fund is proportionately invested throughout the entire accounting period. The principle of "proportionately invested to a maximum extent" is important to the success of the method. The simplicity of operation keeps the cost of recordkeeping and of investment time to a minimum.

Although the Investment Fund method for pooling both cash and investments is extremely simple in operation, a number of advantages are worthy

of mention, since they may not be apparent in a method so free of complications.

An important advantage is the simplicity of bookkeeping for investments both made and matured and for recording of income, all without regard for fund designation. Related to this advantage is the expediency of not having to consider from what funds resources are provided before an investment is made or liquidated. Pooled investments normally can be for larger denominations than investments made for specific funds; larger denominations normally translate into higher rates of return. As previously indicated, this method of pooling permits a maximum level of investment of the resources of all major funds; every fund is invested at this maximum level. Cash flow forecasts are greatly simplified because it is no longer necessary to forecast cash flows for each major fund separately. Related to this advantage is the benefit of being able to use receipts of one fund for disbursements of another fund. For example, tuition money being received one day can be used to pay expenses of funds not having cash inflows at that time. This eliminates the need to liquidate prior investments of a particular fund to pay its current disbursements at a time when another fund has idle cash available for investment. Banking, and the control of bank account balances, is simplified when cash of any fund can be either deposited or withdrawn from any bank account.

The pooling method previously outlined has many advantages, including simplicity of operation. Apparently, however, most institutions do not presently use the pooled investment philosophy. Questionnaire replies in the tabulation in appendix A indicate that only 48½% of the 206 institutions reported pooling of short-term investments. Even this percentage may be misleading: from interviews with college business officers, the author is inclined to believe that some institutions report pooling when, in reality, they use a system of cooperative investment purchases from resources of various funds. For example, one institution reporting pooled investments was found to be purchasing investments with resources of three or four separate funds, keeping records of how much of each investment belonged to each fund and allocating income at maturity for each investment in proportion to the fund ownership of cooperatively purchased investments. In the same questionnaire tabulation, it is apparent that the proportion of institutions using pooled investments increases as the size of the institution increases. It is hoped that as more small institutions realize the simplicity of the foregoing pooled operation plan, they too will benefit from its many advantages.

Note to Chapter 7

1. Leonard H. Haag, "Pooled Fund Maximizes Income from Short-term Investments" in *College & University Business*, vol. 51, no. 4 (October 1971), p. 10.

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8

Cash Management—Cash Flow Projections

A CASH FLOW PROJECTION IS UNDOUBTEDLY THE MOST VITAL TOOL OF AN efficient cash management and short-term investment program. Regarding the importance of a cash flow forecast, Lordan states, "A good receipts and disbursements forecast is the most basic working tool of corporate cash management."(1) A cash flow forecast allows the cash manager to anticipate financial events and to plan necessary action. Investment maturities will be scheduled to meet expected cash needs. To the extent this is done, there will be few financial emergencies requiring unfavorable liquidation of investments before their normal maturities.

A cash flow projection is basically a forecast of three factors:

1. Expected cash receipts.
2. Planned disbursements.
3. Investments to be made, matured, and used.

Methods for projecting the financial aspects of these three parts of a cash forecast will be discussed after considering the period for which a cash flow projection should be made.

In business, two distinct systems are used for preparing cash forecasts; these are (1) the adjusted net income method and (2) the cash receipts and disbursements method. The former uses budget forecasts for six to twelve months or more. Budgeted sales less expenses produce expected net income. When non-cash costs are added back, a cash forecast results; however, this is a long-range forecast that reveals only a balance or shortage of cash at the end of a period. This may be useful in business for various purposes such as capital financing, inventory control, and accounts receivable financing, but this is not the type of forecast that is helpful to an educational institution in the management of working capital and in short-term investment planning. Rather, what is needed is a day-by-day, or at least a week-by-week, projection of inflow and outflow of cash with continuous daily or weekly knowledge of cash balances. It is only by knowing, before the fact, how much cash will be on hand each day that a college investment officer can effectively plan short-term investments.

As Hill states, "An aggressive investment program, for example, will require a forecast that is more detailed and of shorter duration than one pre-

pared merely to provide a general idea of the projected cash balance for the year."(2) Even knowledge of cash balances on a quarterly or monthly basis will be of limited use in an aggressive short-term investment operation.

In business, the second method of cash forecasting, referred to as the cash receipts and disbursements or the cash flow method, is a short-range projection. This system is more nearly attuned to the needs of the cash manager who is concerned with an effective short-term investment program.

In properly controlling daily bank balances, providing for disbursements, and investing idle cash, a college cash manager requires a forecast primarily based on daily or weekly cash receipts and disbursements for expenses of the prior year adjusted for variations of the current year's operations. Cash flow projections illustrated in numerous textbooks are too often based on quarterly, semiannual, or annual budgets. This type of forecast gives only a cash balance at the end of periods, whereas daily or weekly cash balances are necessary for effective control of bank balances and short-term investing.

Referring to answers to the questionnaire on cash management at four-year colleges and universities, summarized in appendix A, one finds that 83% of the respondents forecast cash flow of receipts and disbursements. It is of concern, however, that one of every six respondents does not regularly forecast cash flow. Also of concern is the fact that less than 40%—only 82 of 206 institutions replying—indicate that they have cash flow projections on a daily or weekly basis. This would seem to indicate that most institutions cannot follow an aggressive short-term investment program.

In the use of cash forecasts, the degree of effectiveness varies considerably among daily, weekly, monthly, and quarterly periods. Difference in size of institution and nature of cash flow dictates which period should be used. From the viewpoint of close cash management and maximizing investments, a daily period is best. However, the effort to produce daily forecasts may be deemed unnecessary if cash receipts and disbursements do not have wide daily variations at some institutions.

Although there are certain peculiarities in forecasting cash receipts and cash disbursements at each institution, the main receipt and disbursement categories have common characteristics at all educational institutions. Therefore, it seems appropriate to discuss the normal methods for forecasting those receipts and disbursements common to nearly all institutions. Under receipts should be considered forecasts of tuition and fee income, room and board payments, bookstore sales, gifts, grants and other governmental payments, and miscellaneous receipts. Disbursement projections must cover payrolls, payroll deductions and payroll taxes, utility payments, book purchases, food or food service contract payments, student refunds, loan disbursements, and payments for miscellaneous supplies. In considering the bases for projecting all receipt and disbursement items, one should heed

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the words of Hill, who, emphasizing the importance of accurate forecasts, said, "To the corporate financial officer intent on careful cash management, cash forecasts are a necessity; the effectiveness of his management will be greatly influenced by the accuracy and dependability of the forecasts."(3)

In forecasting daily or weekly receipts, receipt records from the prior year are probably the best basis for such projections. The prior year's data must be adjusted for date changes in the current academic calendar as well as changes in the current level of charges for tuition and fees, room and board, books, etc. Volume is another factor that must be applied to prior receipts as an adjustment. An anticipated increase or decrease in enrollment and in dormitory occupancy is an important adjustment affecting forecasts of tuition and fee receipts. The number of students also affects projections of bookstore and other auxiliary enterprise receipts, such as dormitory and food service operations. Miscellaneous receipts are a small component of the total, and can probably be included in the forecast at the same level and timing as actual receipts of the prior year. Gift receipt forecasting may be related to experience of the prior year, but must be considered in light of gift campaign activity and special solicitation efforts. Just as forecasting gifts is a problem unique to each institution, so, too, the forecasting of grants and government funds depends on those programs in effect at each institution. Forecasting of receipts should include all sources, and each source should be included as accurately as possible.

In projecting future disbursements, those of the prior year will probably be most useful, but, here, too, changes in academic dates and programs, level of activity, and cost-of-living price adjustments are in order. As with receipts, the accuracy in forecasting disbursements is improved when each category of disbursement is considered separately. The accuracy of both timing and level of disbursements improves when they are categorized.

Payrolls are the major disbursement of educational institutions; therefore, predicting the timing and level of future payrolls is of prime importance. The timing of future payrolls should present no problem because they normally follow a fixed schedule. Prior payrolls, adjusted for increased or decreased staffing and for percentage changes in salaries and wages, normally produce accurate forecasts. Deductions from payrolls of such items as payroll taxes, insurance, retirement, and credit union dues have specific due dates and should be disbursed on actual due dates rather than payroll dates. Likewise, such major costs as utility payments, bookstore purchases, food service bills, trust payments for bond retirements, auditing expense, and student loan disbursements have specific payment dates, and the amounts of each should be accurately determined. Prior-year detail provides a good basis for forecasting the amounts of these disbursements. Also, comparison with such prior records is excellent assurance that major items are not over-

looked in forecasts. Miscellaneous payments normally follow the timing and cost level of the prior year.

A theoretical cash flow projection for ABC College is shown in illustration 8.1. In this example, the college uses two disbursement accounts and makes all cash deposits into one account. The second account is funded by transfers from the deposit account, and both bank accounts are incrementally funded. Both banks allow one-day collection time and receipts are therefore shown the day following deposit. This means that cash balances will represent "collected" fund balances. ABC College attempts to maintain average compensating balances of $100,000 and $50,000 in XYZ National Bank and Central State Bank, respectively. Such a cash flow projection produces expected daily balances. As cash receipt and disbursement action takes place, the forecast amounts, having been entered in pencil, will be corrected to reflect actual amounts, and the sheets will then be preserved as a basis for forecasting one year hence.

In practice, the cash flow forecast work sheet in the illustration should be expanded vertically to allow more blank spaces for insertion of additional items of receipts and disbursements that will occur in addition to forecast items. Forecast items are best written in lightly, with pencil, so that amounts may easily be changed to actual. Investments actually made will obviously vary from the forecast amounts as actual available funds exceed or fall short of projected amounts. However, the forecast is a good indication of when and approximately how much can be invested. This permits investment plans to be made a day or two in advance of actual investment action. A daily cash flow forecast will also signal dates on which cash requirements exceed available funds. On such days the cash manager will be prepared to liquidate sufficient investments to meet current needs.

With regard to which staff member should prepare cash flow forecasts and update them to actual, there is no right or wrong designation applicable at all institutions. This function certainly should have the attention of one or more staff members who can give it daily consideration. Although the effort required is far from full-time in even the large institutions, action every day is a necessity. The institutional treasurer's office or that of a cash management specialist is an appropriate place to locate the cash flow forecasting duty. However, a budget director, controller, chief accountant, or similar staff member may have the assignment. As explained in chapter 10 on organization for cash management, there are definite advantages to having the same persons handle all cash management and short-term investment matters rather than to spread various phases of this function to different staff members.

In a medium-size institution, the preparation of daily cash flow projections should not take more than two working days a year if data from prior

ILLUSTRATION 8.1

WEEKLY CASH FLOW PROJECTION

Disbursements indicated by ( )

Day & Date	XYZ National Bank Detail	XYZ National Bank	Central State Bank Detail	Central State Bank
Mon. 9/13	Balance forward	$ 90,000		$ 55,000
	Tuition	465,000		
	Bookstore	25,000		
	Room and board	110,000		
	Miscellaneous	20,000		
	Investment	* (540,000)	Water bill paid 9/10	(75,000)
	Transfer to Central 9/10	(70,000)	→	70,000
	Daily balances	$ 100,000		$ 50,000
Tue. 9/14	Tuition	215,000		
	Bookstore	40,000		
	Room and board	163,000	Miscellaneous vouchers 9/10	(41,000)
	Miscellaneous	15,000		
	Investment	* (390,000)		
	Transfer to Central 9/13	(41,000)	→	41,000
	Daily balances	$ 102,000		$ 50,000

Wed. 9/15	Tuition	260,000		
	Room and board	120,000		
	Miscellaneous	20,000		
	Federal Government letter of credit	120,000		
	Food bills paid 9/13	(50,000)		
	Investment *	(460,000)		
	Daily balances	$ 112,000		$ 50,000
Thu. 9/16	Tuition	65,000		
	Room and board	43,000	Book bills paid 9/10	(244,000)
	Miscellaneous	18,000	Refunds issued 9/14	(30,000)
	Investment matures *	541,000		
	Payroll 9/16	(403,000)		
	Transfer to Central 9/15	(275,000)	→	275,000
	Daily Balances	$ 101,000		$ 51,000
Fri. 9/17	Tuition	20,000	Electric bill paid 9/15	(43,000)
	Bookstore and Miscellaneous	25,000	Gas bill paid 9/16	(27,000)
	State allotment	1,417,000	Miscellaneous vouchers 9/15	(14,000)
	Bond trust payment 9/15	(210,000)	Refunds issued 9/15	(72,000)
	Investment *	(1,100,000)		
	Transfer to Central 9/16	(152,000)	→	$ 152,000
	Daily balances	$ 101,000		$ 47,000

* Signals investment action.

years are available. Only fifteen minutes a day (eight days' working time per year) is required to replace forecast amounts with actual amounts. This total of ten days a year, plus twelve days involved with float data as outlined in chapter 6, is a small effort when related to the potential income from an $8 million short-term portfolio. At 6% this would produce $480,000 of short-term investment income in one year.

In concluding this chapter, it is appropriate to summarize by saying that cash flow forecasts are one of the most basic tools for aggressive cash management and short-term investing. Daily or weekly forecasts for periods at least six months in the future are essential to the proper choice of investment maturities for short-term working capital investments.

Notes to Chapter 8

1. James F. Lordan, *The Banking Side of Corporate Cash Management* (Boston: Financial Publishing Company, 1973), p. 3.
2. Roger W. Hill, Jr., *Cash Management Techniques* (New York: American Management Association, Inc., 1970), p. 12.
3. *Ibid.*, p. 11.

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Cash Management of Fund Transfers

THE TOPIC OF TRANSFER OF FUNDS IS TOO VITAL TO OMIT FROM ANY DISCUSSION of cash administration. Although the subject matter may be small in volume it does not belong with any other single phase of cash management; the importance of this subject therefore merits a chapter of its own. Reference to fund transfers here usually assumes amounts in excess of $100,000.

In day-to-day cash management there are three primary reasons why the financial manager may need to transfer large sums quickly. One purpose may be to move funds from one bank account, where excess funds are on deposit, to an account in another bank where funds are needed to cover checks already released. The second purpose may be to move funds to a bank from which an investment is being purchased and in which the purchasing institution does not have an account. Then, of course, there is the reverse situation in which an investment matures at one bank and the proceeds of such maturity must be returned to another bank where the cash is required to cover checks.

Speed and reliability are of prime importance when considering the transfers of multiples of $100,000. A day lost in the transfer of funds, at 6%, costs over $16 per $100,000. This is an extravagance that an efficient cash manager cannot tolerate.

The financial officer should be aware of the four methods most commonly used for moving large sums. These are (1) federal funds wire, (2) bank wire, (3) correspondent account, and (4) premailed checks.

The federal funds wire method is perhaps the most efficient and reliable method for transferring funds. Such a transfer is a service that a bank performs for a customer. In effect, the bank sending the funds authorizes the Federal Reserve to charge it for funds on deposit in its account at the Federal Reserve and to credit the account of the receiving bank. The Federal Reserve handles this bookkeeping transaction, including notification to the receiving bank, without charge to either bank. However, this does not mean that there is no cost to the transferring bank. Such expenses as clerical cost, telephone tolls, and recordkeeping do represent operating costs to the bank initiating the federal funds wire transaction. Obviously, both banks involved in this two-party transfer must be members of the Federal Reserve System. If the receiving bank were not a member of the system, funds would flow to

another member bank that is a correspondent of the ultimate receiving bank and thence to the nonmember bank through the correspondent account transfer method, explained later in this chapter. A transfer by federal funds wire, if made before Federal Reserve afternoon deadlines, represents "good" funds to the receiving bank on the day of transfer. This is a most important advantage of this method for transferring funds.

A second method, by which large sums may be transferred, is the bank wire system. From the bank customer's viewpoint, this transfer is similar to federal funds wire transfer so long as assurance of "same day" availability of funds is received. The bank wire system is a private telegraphic system used primarily by large money-center banks to clear or transfer large sums. Membership in this private wire system involves a participation cost to the individual banks. Also, the bank using this method of transfer must have substantial sums on deposit in other money centers to effect such transfers.

Of prime importance to the institution is the assurance of that "same day" availability for its funds at the location to which it is sending funds rather than the specific method or wire system used by its bank to accomplish the transfer. The exact method for accomplishing the transfer can be at the discretion of the sending bank as long as that bank can guarantee availability at the receiving location on the "same day" basis.

The correspondent account transfer method is a quick and simple method for moving funds. This method depends on the sending and receiving banks having what is known as a correspondent relationship. This means that one bank has a deposit account in another bank. In effect, the sending bank is a deposit customer of the receiving bank. Such accounts facilitate transfers and other clearing items between the two banks by means of bookkeeping entries. If an institution is aware of a correspondent relationship between two banks in which it wishes to move funds, the correspondent account transfer method can be quick, efficient, and accomplished later in the day than by other means. As an example of this method for transferring funds, assume that ABC College wishes to move funds from bank #1 to bank #2 and that the two banks have a correspondent relationship with each other. The college merely requests bank #1 to transfer a specific amount, via the correspondent account, to bank #2 for ABC College, or other disposition. Bank #1 requests bank #2 to debit bank #1 account (at bank #2) for the specified amount. It requests that a like amount be credited to the ABC College account at bank #2 or that the bank make any other disposition of the proceeds that is requested by the college. Obviously, bank #1 must charge the ABC College account or be reimbursed in the form of a check from ABC College for the amount of money transferred. This method for transfer of funds is quick and simple, and presents no problem between major metropolitan banks. However, between a metropolitan bank and a small out-

lying bank there can be a problem when large sums are involved. In the foregoing example, if bank #1 were a small outlying bank and the amount of money were large, bank #1 may not have sufficient funds on deposit at bank #2. In this event a federal funds wire transfer is the solution because it provides "good" funds on deposit at the Federal Reserve, where they are readily usable by bank #2.

A less common method, used by some institutions for transferring funds, is the premailed check. This takes some advance planning and, for that reason, does not have the same degree of flexibility as the three methods previously mentioned. A typical example of the premailed check system is as follows: ABC College expects to deposit tuition money in bank #1 in the next several weeks. With these funds it wishes to buy certificates of deposit from bank #2. ABC College draws a number of checks on bank #1 for various amounts payable to bank #2 and totaling somewhat less than the expected total tuition deposits to be made in bank #1. These checks are mailed to bank #2 with instructions, to the contact at bank #2, that the checks are to be held for future release. As tuition deposits are made, ABC College notifies bank #2 to negotiate the checks and, in return, to issue certificates of deposit for the amount of the checks being released. It should be noted that these checks will take at least one day to clear and bank #2 normally will issue the certificates of deposit after a one-day delay.

In the use of any method for transferring large sums, the prime consideration is avoidance of delay. For this reason the federal funds wire method and the correspondent account transfer have the most universal application.

Although each of these four methods mentioned for transferring funds involves an internal cost to the bank, most banks do not charge for the service. Such donated bank services should be recognized by the financial manager in any dealings with banks from which such services are provided.

One other somewhat novel method for accomplishing rapid transfer of funds is by airmail pouch service. This is sometimes used in commercial business transactions involving large sums. The application to educational institutions seems questionable, but the cash manager should at least be aware of its existence. As explained in "Managing Company Cash," this method involves an arrangement similar to the following.(1) An employee in Chicago delivers a check, drawn on a New York City bank, to the Chicago airport for airmail pouch transmittal to New York. Another person in New York picks up the check from airmail pouch service at a New York airport several hours later for deposit the same day in the New York bank on which the check is drawn. Obviously, this method will be applicable only when, for some unusual reason, the sending organization will not use the less complicated method of bank funds transfer, such as by federal funds wire, which involves only a telephone call to the sender's bank.

In conclusion, it must be stressed that the two most important features in making large-denomination transfers are speed and reliability. Obviously, minimum or no cost is also an important consideration, but secondary to immediacy and dependability.

Note to Chapter 9

1. "Managing Company Cash," Conference Board Research Report, Studies in Business Policy, No. 99 (New York: National Industrial Conference Board, Inc., 1961), p. 77.

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Organization for Cash Management

THE ORGANIZATION OF PERSONNEL FOR EFFECTIVE CASH MANAGEMENT AT an educational institution has two important aspects. The first to be considered here is organization for responsibility, or who is going to be responsible for managing the daily cash flows of the institution. Related to this aspect is consideration of the reasons for having the same persons manage both short-term investments and daily cash flow. The second aspect discussed is the importance of cooperation from all employees who have any relationship to cash as it flows in or out of the organization.

The assignment of responsibility for cash management in an educational institution probably depends on size more than any other factor. In small institutions cash management will be only one of the duties of an employee hired for other responsibilities; the chief financial officer may thus manage daily cash. Below this level, the responsibility may rest with an assistant to the chief financial officer or it may be assigned to the chief accountant, cashier, business office manager, etc. In large institutions a specialist may be employed to devote part or full time to cash management. As size of institution increases, the specialist may have one or more assistants, depending on the volume of activity.

Regardless of who is assigned responsibility for cash management, it is important to realize that cash management is a continual responsibility. By this is meant that cash management requires the attention of the cash manager two or three days a week, if not every day. Although cash management is not a full-time responsibility at most institutions, it nevertheless is a responsibility that should have some attention every day or every second day, depending on the aggressiveness of the program.

Financial officers of colleges and universities may believe that they do not have time for close administration of cash and the related short-term investment program. Analysis will usually show, however, that the return on such a program will pay the cost of an assistant to manage cash. Any effective cash management and investment program should produce financial returns many times the cost of time devoted to such activity. Even in a medium-size institution, if the short-term investment portfolio averages $5 million, improvement of yield by ½% a year produces an additional $25,000. Such improvement results from continuous attention, but requires far from full-time activity on such a relatively small program. The $25,000

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additional return might be produced by only one-fourth of a specialist's time.

Centralization of both cash management and short-term investment responsibilities into one position often justifies employment of a specialist in these functions or the training of an employee in a related position. Except in the largest institutions, the cash manager usually is assigned other responsibilities as well.

Even where both cash and investment responsibilities are more than a full-time position, there are logical reasons for not separating investment operations from daily cash administration. If a cash manager does not have investment responsibility, he has no direct interest in investment results. In preparing cash flow forecasts he has no real incentive to squeeze maximum investable funds from daily cash flows. His attitude will more likely be to make rough estimates of resources available for investment, but to "play it" on the safe side, not to overcommit, in order to keep a comfortable cushion to cover forecasting errors.

Likewise, an investment manager who is not responsible for cash administration has limited incentive. He waits for a cash manager to tell him how much is available to invest and for approximately how long. He decides on an investment, places the order, and has no further interest until the cash manager notifies him of additional funds for investment. Neither the cash manager nor investment officer has any personal concern with maximizing investment principal. Increasing principal by squeezing every dollar of excess cash from an idle status into an invested position is the key to increasing overall effectiveness in managing cash. Combined cash management and investment functions create the incentive needed to maximize effectiveness.

In referring to the questionnaire replies, as reproduced in appendix A, one finds that 69.4% of participating institutions indicated that the same persons are responsible for both cash management and short-term investment functions. Even in institutions with enrollments exceeding 20,000, twenty-four of thirty-eight (63%) assign both responsibilities to the same persons.

The cash manager should work closely with the internal auditor in order to set up procedures and controls deemed necessary by both. Proper internal controls protect the cash manager and help to assure the confidence of staff members in the integrity of the cash management and investment operation. The total program should produce clear and distinct audit trails that can be used to verify the propriety of all activity.

The position that is assigned responsibility for overall cash management should carry the authority to implement simplifications and routine changes necessary to facilitate cash control. Authority sufficient to merit

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cooperation of other staff members who relate to cash operations is desirable.

With regard to organizing for the cash management program, Jones and Howard state, "For maximum effectiveness, the authority and responsibility for the cash management program must be clearly assigned. Because communication among people in many departments is a prime ingredient in an investment system, the responsible officer must have authority to cross organizational lines and to establish proper procedures for channeling information from the many sources that must feed into the system."(1)

A second aspect of organizational structure concerns the various departments from which the cash manager needs cooperation. The vice president for finance at a private college expressed to the author the importance of staff cooperation. As mentioned in chapter 2, he stated that the key to effective cash administration is the attitude of the entire business staff. A realization by all staff members of the importance of cash and its time value is important. A check received in the amount of $50,000 has value only after it is deposited in the bank. A delay of two days in processing such a check represents an unnecessary loss of $16 in potential investment income at 6%. Similarly, paying out $50,000 two days early involves a comparable loss. Therefore, staff members concerned with receipt and disbursement of cash should realize its importance and its time value. A small institution probably can more easily develop a constructive cash attitude in the entire staff than is possible in the largest and most complex universities. This is why the small or medium-size institution has the potential for a more effective cash management program.

Cooperation and proper attitude are essential from all staff members involved with receipt of cash and disbursement of funds. As noted in chapter 5, if mailroom personnel have the proper attitude, they can be especially helpful to a cash manager in flagging window envelopes containing checks from federal and state treasurers and similar sources of large checks that merit special handling. The cashier positions, when staffed by employees who understand the importance of promptly depositing all funds, are helpful to the cash management program. Grant accountants and financial aid officers, with the desired attitude toward cash, can be helpful in signaling the receipt of large checks and facilitating the prompt deposit of such items.

On the disbursement side of cash management, and as previously outlined in chapter 6, proper procedures and attitudes in accounts payable operations are vital. The taking of all cash discounts and avoidance of prepaying invoices are important. Data regarding future major disbursements may come from the purchasing department, loan office, bookstore, or library if they disburse separately from accounts payable, as well as from clerks

handling such items as refunds to students. Staff cooperation in alerting the cash manager to utility bills payable, bond trust payments, payrolls, payroll tax deposits, and major equipment and maintenance disbursements is helpful.

Early notification of the day's cash receipts enables the financial manager to invest for next-day settlement, which often has cost-saving advantages. Advance information on major or emergency disbursements may avoid unexpected and costly investment liquidations. Control over release of disbursement checks by the cash manager, or accurate information on the timing of release from another staff member, is vital to proper administration of disbursement float and incremental funding.

The cash manager's efficiency and the effectiveness of the total program depend on cooperation from the entire business staff. Time spent in earning such cooperation is a key to organizational effectiveness.

Note to Chapter 10

1. John A. Jones and S. Kenneth Howard, *Investment of Idle Funds by Local Governments: A Primer* (Chicago: Municipal Finance Officers Association of the United States and Canada, 1973), p. 7.

Part 2

Short-Term Investments

11

Investment Considerations—Risk

PRIOR TO A DISCUSSION OF TYPES OF SHORT-TERM INVESTMENTS, IT IS important to understand the main concerns of an investment officer in making investment decsions. These concerns are risk, liquidity, yield, and legal restrictions.

Risk is perhaps of greater concern to the investment officer of an educational institution than it is to his counterpart in industry. The fiduciary aspect of handling college or university funds always involves proper use. The term "proper" implies not only use or expenditure for authorized purposes but also the safety of principal until funds are used.

It is often said that any investment involves some degree of risk. Although it is true that no investment is 100% risk-free, risk of loss of principal in a carefully selected investment can be lower than the risk of loss of value by not investing. Simply defined from an investment viewpoint, risk is the chance of not recovering a portion of one's principal and interest because of default by the debtor with whom an investment was made. A less important concern in risk is that yield on an investment will be less than anticipated because of a change in market conditions. This is known as market risk, and is a risk of yield change only, not of invested principal loss. Each of the typical money market investments discussed in chapters 15–21 has varying degrees of risk. This risk factor for each type of investment will be considered in the separate chapters dealing with each type of investment.

As previously mentioned, the third concern of an investment officer is yield, which is closely related to risk. In general, yield depends on risk, and the higher the risk the higher the yield should be.

Although risk and yield are related, it is sometimes possible to increase yield without increasing risk. However, it behooves the investment officer to question why a higher rate of return is offered on certain types of investments. If the reason appears to be related to a higher degree of risk than should be assumed, that investment should be passed over. A maxim should be to never incur additional risk of loss of principal in reaching out for that last increment of investment return.

Although each type of investment has a different degree of risk, the investor need not be limited to the very lowest risk and lowest-yielding in-

vestment. There are various methods for minimizing risk in a mixed portfolio, and these are briefly considered below.

In addition to selection of relatively low-risk investments, diversification is a normal method for reducing risk. This involves the principle of not putting all of one's eggs in one basket. If investments are made in bank certificates of deposit, this principle would dictate the selection of a number of reliable banks and the spreading of investments among five, ten, or more. Likewise, when investing in prime 1 commercial paper, considered the most risk-free category of commercial paper, one should probably buy the paper of a number of issuers. The reason is that, in event of a bankruptcy, no substantial part of an institution's investments would be with the bankrupt organization. Just as diversification within a single category of investment is wise, so is diversification among types of investment.

A useful method for reducing risk is to secure a collateral pledge of securities against an investment such as a bank certificate. The banking laws of certain states permit banks to pledge U.S. Treasury securities or municipal bonds against large-denomination deposits in certificates of deposit. Where this is allowed, the investor receives additional risk protection on such deposits. Pledging collateral does involve some additional cost to a bank and some banks will pay a lower rate of return on collateralized certificates. However, by negotiation and by dealing with banks that do not quote differential rates, the investor may add the safety of collateralized investments without reducing yield.

The investment officer may also reduce risk by a careful financial analysis of the organizations in which investments are made. Moody's and Standard & Poor's rating services rate a number of commercial paper issuers. Ratings of P-1, 2, 3, and 4 and A-1, 2, 3, and 4 respectively by these two services give the investor an indication of the investment grades or risk of various issuers. Whether the investment officer is relieved of risk responsibility by reliance on rating services is a moot question. It should be recalled that Penn Central commercial paper was highly rated shortly before that organization filed for bankruptcy.

Financial analysis of banks in which investments are made is an attempt to reduce risk. How to analyze a bank's financial safety is a matter of judgment based on generally accepted ratios and guidelines. From which sources an investment officer can obtain financial data on a number of nonlocal banks is often a perplexing question. Some guidance on this subject is offered in chapter 22, on developing investment sources.

In a discussion of risk, one should also consider safekeeping receipts for investments. These are receipts for securities, issued by the seller or intermediary to the purchaser of investments. A safekeeping receipt may be more convenient and sometimes involves less risk than taking delivery of

investment securities; it is practically a necessity when buying bearer investments, such as treasury bills, because these are nearly as negotiable as cash. A safekeeping receipt indicates that the security is legally owned by the party to whom the receipt is issued. Should the issuer of the receipt become bankrupt, the securities are not assets of the safekeeping organization. Legal ownership rests with the investor for whom the securities are held in safekeeping. In spite of the legality of ownership, as indicated by a safekeeping receipt, the investor normally will have securities held only by institutions (banks, security dealers, etc.) in which he has confidence.

In conclusion, because of the fiduciary nature of the funds of educational institutions, the investment officer should consider risk of highest importance in arriving at all investment decisions.

12

Investment Considerations—Liquidity

LIQUIDITY OF AN INVESTMENT REFERS TO THE CHARACTERISTIC OF BEING easily convertible to cash before stated maturity date. This characteristic depends on the marketability of an investment and the existence of an organized market.

Liquidity has several important advantages to the investor. Perhaps the most universally applicable advantage relates to the ability to liquidate an investment in the event of an unexpected need for cash before maturity of the investment. When such a need arises, a liquid investment may be easily sold. This characteristic also reduces the need for completely accurate cash flow forecasting. However, liquidity should not be substituted for well-prepared cash flow forecasts because liquidity normally has a cost in the form of somewhat lower rates of return.

On the other hand, liquidity tends to reduce risk. If the investor has a security for which he feels that risk is increasing because of unfavorable economic conditions, he can dispose of that investment if it has liquidity in the form of marketability. For example, assume that ABC College has a large-denomination negotiable certificate of deposit in a nationally known bank. Before maturity of the certificate, the college may learn of changing conditions that lead the investment officer to feel that the risk of holding a certificate in that particular bank has increased. If he feels uncomfortable with the degree of risk, he may sell the certificate through a security dealer. In this case liquidity has been an insurance factor against increased risk.

As most business officers know, there are certain disbursements that cannot be timed exactly. Construction payments, large maintenance contracts, and invoices from suppliers of large equipment purchases are examples of disbursements for which exact payment dates cannot be forecast until related future events take place. For these disbursements, it is convenient to have funds invested in a liquid security that can be converted to cash at any future date when it is finally determined that funds are needed.

Another important aspect of liquidity relates to the ability to switch from one type of investment to another in order to increase yield. Market conditions over periods of time affect the rates of return on various forms of investments. Liquidity may make it possible to switch from one form of

investment to another that has recently shown a substantial increase in yield as a result of changing economic factors.

As an example of the foregoing, assume that ABC College holds a substantial amount of treasury bills with original maturity nine months in the future. These were purchased because money market conditions made the yield nearly as high as could be earned on bank certificates of deposit and the treasury bills offered greatest liquidity. After three months, economic conditions have changed and the yield on bank certificates of deposit for six-month maturities now stands substantially above the yield on six-month treasury bills. With six months to maturity on the treasury bills held by the college, the investment officer may take advantage of their complete liquidity. He may sell them and invest the proceeds in six-month bank certificates in order to increase the yield substantially during the remaining investment period. Money market investment yields on various types of investments normally move together; however, that is not always true, and the alert investment officer will find occasions when liquidity enables him to increase yield by switching among types of investments.

This brief chapter has discussed the more common advantages of liquidity. In conclusion, it should be pointed out that the most universal advantage of liquidity relates to a situation that occurs in even the most efficient and carefully managed cash programs, namely, when an institution suddenly needs a substantial amount of money, which was not anticipated. The investment officer who has a certain portion of the portfolio in investments with complete liquidity has the solution to such emergencies.

13

Investment Considerations—Yield

A THIRD BASIC CONCERN OF THE INVESTMENT OFFICER IS YIELD, WHICH represents the income from investment efforts and is the ultimate purpose for which investments are made. Therefore, the investor will attempt to increase the yield of investments to the maximum extent consistent with all other considerations that must be observed. As previously pointed out, yield is closely related to risk. Therefore, the investor must constantly be concerned with risk in the attempt to secure higher yields. Reasonable risk must not be exceeded in gaining higher yields.

Yield on short-term investments is in one of two forms, or in some combination thereof. A stated or coupon interest rate is the most common form of yield. This type of investment return normally applies to savings accounts, certificates of deposit, notes, bonds, etc. The second form of return on an investment is discount. Simply stated, this means that an investment, with a face value or stated value at maturity, is purchased at a discount before maturity. In this case, the difference between the discounted price and the face maturity value becomes the income yield to the investor. Obviously, it is possible to have a combination yield. This happens when an investment, with a stated interest rate, is purchased at a discount or premium on the open market.

Yield depends on risk, maturity, liquidity, demand for funds and supply of funds. Normally, yield increases as the term to maturity lengthens. Under normal conditions an investment for one year has a higher rate of yield than a similar investment for only six months. Similarly, long-term bonds maturing in 20 years usually carry a higher rate of return than intermediate maturities of five or ten years. However, it is in the shorter range that rates of return normally increase most rapidly. This increase in yield is most rapid as the term to maturity on short-term investments extends from 30 days, or less, to one year. Beyond the one- or two-year maturities, rates of return usually increase much less rapidly. A curve based on such conditions is a normal or positive yield curve. In all of the above statements, it has been necessary to use an adverb indicating that the statement is true under usual conditions. However, unusual economic conditions may change interest rate patterns and on occasion may produce an inverted yield curve in which rates are higher at the short end of ma-

turity terms and rates are lower as the term to maturity becomes longer. This is referred to as a negative yield curve, as differentiated from a positive (normal) yield curve. The investment officer should constantly be alert for changing economic conditions that will change the yield-maturity relationship. If yields are high in short maturities, he will likely take advantage of shorter-term investments, recognizing that risk is also lower on shorter-term investments of otherwise equal quality. This is true because a shorter-term investment matures before changing economic circumstances can create adverse business conditions and jeopardize the principal of an investment.

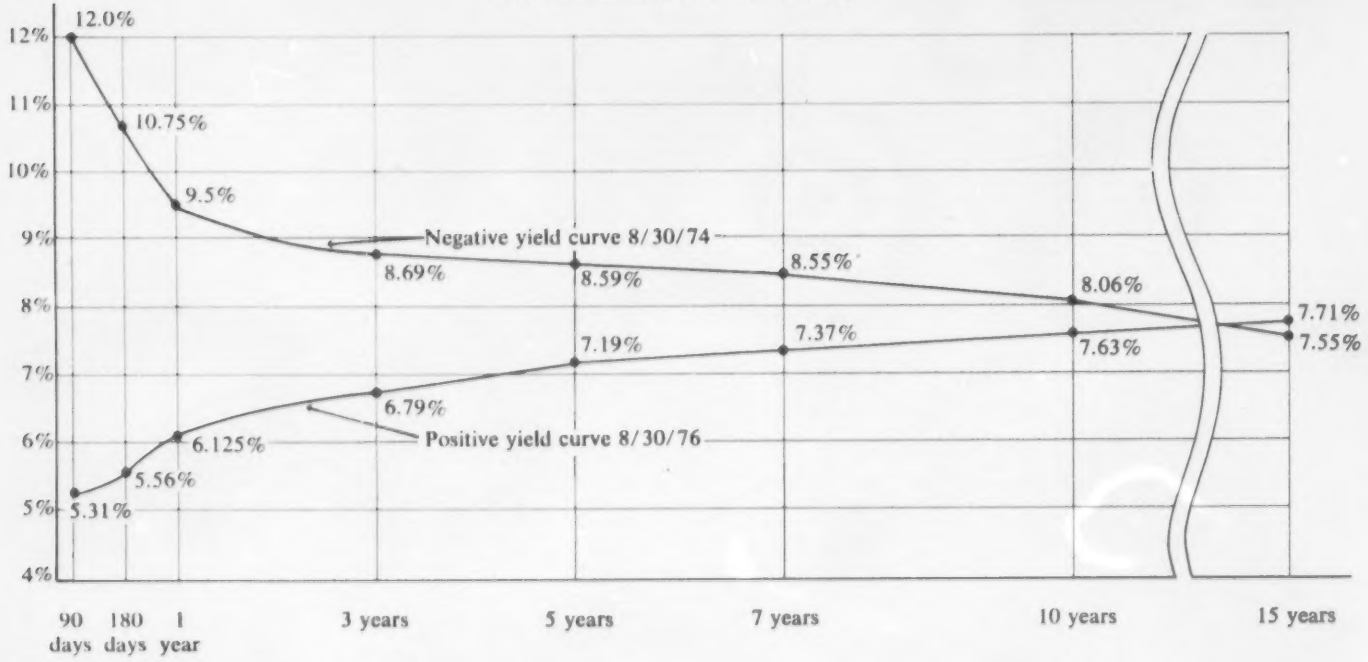
Illustration 13.1 presents examples of yield curves previously referred to. The bottom curve represents rates rapidly increasing from 90 days to one year and less rapidly for maturities in excess of one year. This is the positive or normal yield curve in which the rate of increase slows as maturity increases. This normal curve represents rates in effect on August 30, 1976. The upper curve, being the reverse of the lower one, is referred to as a negative curve. This situation is abnormal and represents an opportunity for the investor to increase yield by shortening portfolio maturity. Rates are very high at the short maturity, fall rapidly out to one year and continue to fall more slowly beyond one year. This curve represents rates as of August 30, 1974, just two years before the lower curve. These curves display that, under both types of yield curve, it is in the short-term maturity period that wide rate variations exist from time to time. In this two-year period one sees that 180-day rates had a spread of nearly 5.2% (10.75% in 1974 vs. 5.56% in 1976). On the other hand, in the five-year maturity range, the variation is only 1.4% (8.59% in 1974 vs. 7.19% in 1976).

A portion of yield is normally the result of a possibility that the investor may lose some principal value. Such loss of value can be either by default of the debtor, in the case of higher-risk investments, or by erosion of purchasing power through inflation. The latter accounts for variation in rates of return from the real time value of money, sometimes stated as approximately 2½% a year.

There is a close relationship among the three factors of risk, maturity or term, and yield. However, yield also depends on actions of the central bank to control currency growth. This is true because actions of the open market committee of the Federal Reserve affect the supply and demand for U.S. Treasury securities. Open market purchase by the Fed, to supply banking reserves, tends to force rates of yield to fall. Conversely, sales by the Fed to reduce bank reserves exert upward pressure on yield rates. Rates of return on all short-term investments tend to follow the level of yields on U.S. Treasury securities.

ILLUSTRATION 13.1

Representative Yield Curves



Note: 90 days to 1 year are CD rates; 3 years to 15 years are government coupon issue rates.

Economic supply and demand also affect yield. When there is a great increase in the demand from businesses for short-term loans, the rates of return on short-term investments tend to rise. This is true unless a corresponding increase in the supply of investable funds occurs. An increase in supply of funds seeking investment puts downward pressure on interest rates.

Only some of the usual factors that affect the yield on short-term investments are mentioned above; the investment officer should continually be informed of the constantly changing conditions that affect yields. By being currently informed on changing economic conditions, an alert investment officer may increase overall portfolio yield by anticipating changes in yield rates. This is possible by the timely lengthening or shortening of portfolio maturities. Timely switching from one form of short-term investment to another also has potential for increasing yield. The aggressive investment officer will not consider an investment transaction as made up entirely of purchase and maturity. Between the time of purchase and maturity, there are additional opportunities to take actions that will increase yield.

Although sources of information on money market data are more fully explored in a later chapter, some of the more usual sources of information about yields of various investments are mentioned here. The daily *Wall Street Journal* publishes money market rates. In that section, yield rates for commercial paper, bank certificates of deposit, bankers' acceptances, and federal funds are shown. Federal funds are excess bank reserves that a bank loans to another bank that is short of reserves. These loans are usually overnight or for similar short periods. The importance of federal funds rates to the investment officer is that they serve as a barometer of trends in all money market rates. The investment officer does not invest in federal funds, but merely watches the change in their rates as the most universal indication of the level and trend of general short-term interest rates.

The daily *Wall Street Journal* and many metropolitan newspapers publish rates of return on U.S. government and agency securities. They also include the discount rates for treasury bills.

Security dealers are sources for the purchase of commercial paper, bankers' acceptances, and bank certificates of deposit being sold on the resale market. These dealers quote rates on the various issues they have for resale, and a telephone call will provide usable yield information from this source. Likewise, a call to various bank investment departments or bond departments will provide rates on initial issue certificates of deposit of that bank and on any other investments for which the bank may function as a security dealer.

When a major investment is anticipated, it is advisable to shop for rates at least one day in advance. With yield information assembled from a number of sources, a more advantageous investment can be made. Although rates change from day to day, the relative level of yields remains approximately the same from one day to the next for various investments. Plans based on rates of return assembled a day in advance are likely to be better than investments placed on an emergency basis without time to secure information from a number of sources to include all available investments.

Yield is the most changeable factor for the investment officer to consider, so this is the factor one should continually have under review. Sources of information should be developed and time should be allocated to read and study this information. (See chapter 26 for sources of data.)

14

Investment Considerations— Legal Restrictions

THE INVESTMENT OFFICER OF A COLLEGE OR UNIVERSITY MUST CONTINUally be aware that he is dealing with funds held in trust. As such, these funds have certain legal restrictions on how they may be invested. Although the term "legal restrictions" implies restraint, the investment officer should recognize that such restrictions are usually for his guidance and for the safety of principal. They relieve the investment officer of certain responsibilities; without any legal restrictions, the investment manager would have greater personal responsibility than most would wish to assume.

On the other hand, some legal restrictions become outdated; although they may have served a purpose in the past, they now do nothing more than handicap an investment program. Constant pressure by business officers to change such undesirable restrictions is necessary.

Legal restrictions may be imposed by the state, a state educational system, or the governing board. Similar to legal restrictions are rules and procedures developed by administrative officers; although these are not legal restrictions, they have a similar effect on investment actions.

Legal restrictions imposed by states or state systems usually control the type of security in which an investment can be made. For example, investment officers in a neighboring state advised the author that restrictions prohibit a public institution in that state from depositing funds in a savings account or in savings deposit receipts in any bank. Only demand account deposits and time deposits in banks are permitted. If other types of investments are permitted, the restriction against savings account deposits is probably no great handicap. Still, it is difficult to justify such a restriction.

In another region, the officers of a major public university advised that state legal restrictions prevent them from investing out of state in bank certificates of deposit. Later in this chapter are discussed the reasons that such a restriction no longer seems to have support of the logic that was once the basis for such local investment philosophy.

Board-imposed restrictions are likely to be general policy guidelines that the institution requires its investment officer to follow. Such procedures, when carefully prepared by persons knowledgeable about finance

and investments, are truly a help to an investment officer. Mainly, such restrictions relieve the investment manager of the responsibility for making all decisions. Conversely, self-interest restrictions imposed at the request of influential board members may have adverse effects. An example of this would be when a board member who has an interest in a certain bank uses his influence to obtain a restriction excluding all other banks as sources of investments. This restricts the institution's bank investments to the bank in which the board member has an interest. The institution is penalized by not being able to take advantage of higher rates of return that may be offered by other banks.

Policies and procedures imposed by either the institution's board or administrative officers should cover basic guidelines but leave day-to-day operational decisions to the investment officer. Some of the normal restrictions imposed by board policy are:

1. Indication of what categories of securities may or may not be purchased.
2. Indication of maximum proportions of each type of investment that may be held.
3. Specifications for determining what banks may be used for bank investments.
4. Guidelines for determining what commercial paper issues, if any, may be purchased and restrictions on the total holding from any one issuer.
5. An inclusion, in the above or in additional guidelines, of higher-level or state-designated restrictions.

The policy restrictions should be broad general principles leaving as much discretionary power as possible to the chief investment officer. Such discretionary power allows day-to-day flexibility, which is desirable for maximizing investment effectiveness. Determination of what specific securities to buy, what length of maturities to hold, which organizations (within broad guidelines) to deal with, plus the ability to sell investments in order to switch types or to change lengths of maturities are all decisions best made by a knowledgeable investment officer in day-to-day transactions.

Whatever legal restrictions may apply to specific public or independent institutions, it is essential that the investment officer of each institution know all the restrictions applying to the funds under his control. If certain restrictions appear to be a handicap, the investment officer's responsibility is to follow these restrictions until such time as he can have them changed.

An example of a restriction that handicaps an investment program is a requirement that funds be invested locally or within the state. When the economy of a state is temporarily depressed, the demand for bank loans is limited and the rates paid by banks on certificate of deposit money are low. Conversely, banks in another state with a booming business economy

may be paying substantially higher returns for time-deposit funds. A recent experience of the author bears this out: during depressed automobile production, to which the regional economy is closely related, banks in other states were offering as much as 7/8% higher return on 120-day certificates of deposit than any major in-state bank was offering. Such a situation makes it very advantageous to be able to invest out of state.

An investment officer occasionally feels pressure from local bankers, from board members, or from administrative officers to keep funds invested locally. In spite of potentially higher rates of return offered by nonlocal banks, the argument is used that there is a moral obligation to invest funds locally to help the local economy. In an open financial community this appears to be false logic. If local banks are offering lower rates for invested funds, it probably means that the demand for funds is less in the local community. A local investment, under such circumstances, merely subsidizes the local bank. Because of the fiduciary nature of college and university funds, it is difficult to justify their use to subsidize any specific bank. When funds are invested locally, no additional wealth is brought into the community. Insofar as funds invested in a local bank are reloaned within the community, the interest represents merely a transfer of wealth from one local organization to another.

When higher rates of return in other regions indicate a greater demand for funds, investments in those areas are justified both from the institution's viewpoint and from the viewpoint of aiding the local economy by bringing in additional wealth. Funds invested away from home return at maturity increased by the interest, which, if spent locally, improves the local economy. The investment officer should be free to invest where it is to the best advantage for the institution, and should resist the argument that there is an obligation to invest locally at lower rates of return.

Several parts of the questionnaire replies summarized in appendix A relate to legal and other restrictions. It may be noted that 50% of institutions had less than five sources for certificate of deposit investments; this would seem to indicate that pressure to invest locally and legal restrictions against investing out of state are probably handicapping the investment programs at many institutions. Similarly, the tabulation indicates that over 75% of replying institutions did not invest with out-of-state banks. It may also be noted that investment decisions are admittedly affected by local politics at over 29% of the institutions and that nearly one-third of the institutions do not have a board-approved investment policy.

15

Short-Term Investments— Certificates of Deposit

THE BANK CERTIFICATE OF DEPOSIT IS THE SUBJECT OF THIS FIRST CHAPTER in a series of chapters on short-term investments because it is so commonly used and universally understood. Over 96% of the institutions replying to the questionnaire, as tabulated in appendix A, stated that they use bank certificates of deposit for short-term investments. This proportion is over 30% higher than for treasury bills, in spite of the fact that treasury bills are the short-term investment security having the largest volume.

The history of certificates of deposit is one of the shortest of all major money market instruments. Hill summarizes this short history as follows: "Since 1961 commercial banks have been issuing interest-bearing time certificates of deposit in negotiable form. These certificates were first developed by the large New York City banks to attract short-term corporate funds that were being invested in various short-term money market instruments. Essentially a device for paying interest on deposits or purchasing money, the certificates of deposit of large, well-known money-center banks quickly gained wide acceptance, since the yields were competitive and marketability through the dealers' secondary markets was reasonably good."(1)

Certificates of deposit are familiarly referred to as CDs. These are certifications, by commercial banks, that a stated sum is on deposit for a stated period of time and will be repaid to the depositor with a specified rate of interest added at maturity. By Federal Reserve regulation, bank certificates of deposit must be issued for periods of 30 days or more.

Certificates can be issued for any denomination. However, money market CDs are normally for $100,000 or more. This does not mean that the institutional investor cannot profitably buy smaller-denomination certificates, especially from local banks. The smaller deposit normally will not earn a yield as high as the $100,000 deposit, however.

Certificates of deposit may be either negotiable or non-negotiable. The non-negotiable CD is repayable only to the depositor. A negotiable certificate may be transferred by endorsement and payment will be to the holder at maturity.

It is important to recognize that CDs have a specified interest rate. This

rate is payable only from issue date to maturity. Money market CDs do not earn interest after maturity and therefore should be redeemed or renewed promptly at that time.

A CD may not be redeemed by the issuing bank before maturity without substantial penalty to the investor. If redemption before maturity may be necessary, it is vital to the investor that the certificate be negotiable and issued by a recognized major commercial bank. This enables the investor to sell it on the resale market through a security dealer and avoid the early-redemption penalty.

Certificates of deposit issued by smaller regional banks are not recognized as money market CDs, and resale would be difficult through security dealers. The best resale for such certificates may be through direct contact with investment officers of other educational institutions. In negotiating the resale, it is important to recognize that the seller and buyer cannot both make the stated rate of interest for the periods held.

As an illustration, assume that ABC College holds a $100,000 certificate at 6% with a 180-day maturity. After 90 days the college needs the funds and arranges to resell the CD. It cannot sell the certificate for $100,000 plus $1,500 interest (6% on $100,000 for 90 days) if the buyer wishes to make 6% during the remaining 90 days. In this situation, the buyer can pay only $101,477.83, and the return to the college, for the 90 days held, amounts to only 5.91% instead of the stated 6%. Conversely, if the buyer pays $101,500, then the college makes 6%, but the yield to the buyer is only 5.91% during the final 90-day remaining period. It should be repeated that the seller and buyer of an existing CD cannot both make the stated interest rate for each portion of the total term to maturity.

If an investor is to consider the purchase of an existing CD (with a stated interest rate) and if he has determined what rate of yield he desires to make on the investment, he is faced with the interesting problem of what price to pay for it. This may be illustrated and solved as follows:

> Assume that an 8%, $100,000 CD with an original maturity of 180 days is offered for resale after 78 days (102 days before maturity). At what discount or premium price should it be purchased if an 8¾% yield is desired?
>
> Let x = discount or premium per $1
>
> Then price (cost) = $1 − x
>
> Formula:
>
> $$\frac{\text{Total CD yield} \begin{matrix} + \text{ Discount} \\ - \text{ Premium} \end{matrix}}{\text{Cost}} = \text{Desired yield}$$

or

$$\frac{\dfrac{\text{Stated rate of return} \times \text{Original days to maturity}}{360} + \text{Discount} - \text{Premium}}{\text{Cost}} = \frac{\text{Desired rate of return} \times \text{Remaining days to maturity}}{360}$$

Solve by substituting assumed factors:

$$\frac{\dfrac{(.08)\ (180)}{360} + x}{(1 - x)} = \frac{(.0875)\ (102)}{360}$$

$$\frac{(.08)\ (180)}{360} + x = \frac{(.0875)\ (102)}{360} \cdot (1 - x)$$

$$.04 + x = (.0247916)\ (1 - x)$$

$$= .0247916 - .0247916x$$

Transposing:

$$x + .0247916x = .0247916 - .04$$

$$1.0247916x = -.0152084$$

$$x = -.0148404 = \text{premium per \$1}$$
$$(+ \text{ sign implies discount})$$

$$1 - x = 1.0148404 = \text{price per \$1 face value}$$

$$\$100{,}000 \text{ CD} @ 1.0148404 = \$101{,}484.04$$

A few words about the risk, liquidity, and yields of this popular, modern, money market instrument are in order. Since the Federal Deposit Insurance Corporation presently insures bank deposits to a maximum of $40,000 per depositor, the risk on large CD investments is closely related to the safety of each individual issuer and of the banking system in general. An institution holding hundreds of thousands of dollars worth of CDs of one bank should realize that only $40,000 is covered by insurance. Therefore, it behooves the investor to give some consideration to minimizing the risk of CD investments. First of all, consideration should be given to the financial soundness of the banks from which they are purchased (chapter 22 explores some of the sources of bank financial data). Secondly, the investor of large sums of CDs should give consideration to reducing risk by diversifying such investments. Investing $1 million in each of five supposedly sound banks minimizes risk more than investing $5 million in one bank.

The above-suggested diversification has an advantage in addition to risk reduction. As the investor develops many sources for investment, oppor-

tunity is increased for locating more advantageous yields than are possible when dealing with a limited number of local sources.

Maturity date is an important consideration when investing in CDs. This type of investment has the advantage of tailor-made maturities. By this is meant that the investor can specify any maturity beyond 29 days when buying a certificate from the issuing bank. If an institution has investable funds it will need for disbursements in 49 days, 163 days, or any other specific period, a CD can be purchased to mature on the exact maturity date needed. This advantage is one that few other money market investments possess. However, this advantage is partially offset by the limited liquidity of a CD investment. Unless a certificate has been issued by a major money-center bank and can be resold before maturity, the liquidity of such investments is lower than most other money market investments. This limited liquidity requires that the investor in CDs pick maturities carefully, and commit only such funds as may not be needed on an emergency basis.

With regard to yield, CDs now have rates of return comparable to most other money market instruments. During most of their short history, their rates of return were governed by limits set by Regulation Q of the Federal Reserve System. All such interest rate limitations on large-denomination CDs have been suspended since May 1973, and those CD rates are presently free of interest rate limitations. This means that the yield on CDs is now determined by economic and financial conditions. Sometimes the rate of return is more advantageous than on other instruments, sometimes less advantageous. Because of such changing yields, the investment officer must constantly keep informed on rates. By widely shopping for rates, the investor will find higher rates in an area where the demand for certificate deposits is great. However, that demand may be temporary, and the next time an investment is to be made, the rates of return may be higher in some other location. This reinforces the point, previously made, that an investor should develop a number of investment sources.

The method for purchasing CDs from issuing banks is simple. Telephone calls can be made to selected banks to request rates on CDs of $100,000 for desired maturities. Contact with local banks may be made through the cashier or other officer. Calls to larger regional banks should be directed to the bank investment or bank bond department. After rates are compared, a call to the selected bank will accomplish the investment. One merely indicates the principal amount of the CD, the maturity desired, the rate of return as offered by that bank, the name in which the certificate is to be issued, and delivery instructions. With regard to delivery, the purchaser may ask that the certificate be mailed to him or that the CD

be held by the bank against a safekeeping receipt mailed to the investor. The only remaining detail is to arrange for the method of payment so that the issuing bank has "collected" funds on the date of issue. The three methods most commonly used are:

1. A direct charge against a demand account of the purchaser at the issuing bank.
2. A check drawn against an account of the purchaser at the issuing bank.
3. A transfer of federal funds from the purchaser's bank to the issuing bank, in which the investor might not maintain an account.

Certificates of deposit can also be purchased from a security dealer in the secondary market. In this case the purchaser is buying a negotiable certificate that was previously issued to an investor who chose to sell it before maturity. Purchase from a security dealer is at a negotiated price; arrangements for payment and delivery are similar to procedures in buying an original issue CD from a bank.

As previously pointed out, the tabulation of questionnaire replies in appendix A indicates that over 96% of responding institutions use CDs as a source of short-term investing. However, 50% indicate that they use less than five sources for CDs, which seems to indicate an opportunity for institutions to increase the effectiveness of such investments by developing more sources.

Note to Chapter 15

1. Roger W. Hill, Jr., *Cash Management Techniques* (New York: American Management Association, Inc., 1970), p. 46.

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Short-Term Investments—Savings Accounts and Savings Deposit Receipts

SAVINGS ACCOUNTS AND SAVINGS DEPOSIT RECEIPTS (SDRS) ARE SIMILAR insofar as banking regulations are concerned; they differ only in the way they operate. Deposits to and withdrawals from a savings account can be for any amount, while deposits to and withdrawals from savings deposit receipts are normally in denominations of $5,000 or more. Interest rates are limited by Regulation Q of the Federal Reserve System and the same rates apply to both SDRs and savings accounts.

Banks may legally require 30 days' notice for withdrawal from either savings accounts or SDRs. However, in practice, withdrawals may be made at any time without prior notification, and interest is normally earned on a daily basis.

Savings accounts and SDRs are the least sophisticated forms of short-term investments. Banks usually will accept only up to $150,000 in SDRs at savings account rates. When amounts in excess of that maximum are accepted by the bank, rates may be less than the savings account rate. In spite of the above limitations, use of either savings accounts or SDRs provides additional flexibility to an investment program. This enables an institution to invest small additional amounts that would not be possible with usual money market investments.

A high degree of flexibility arises from the complete liquidity of these forms of investment. An educational institution may buy SDRs from a local bank in amounts of $5,000 to $50,000 or more whenever these smaller sums are available. When small amounts of funds are needed later to cover unexpected disbursements or shortages of anticipated receipts, the institution can immediately redeem one or more of the previously purchased SDRs. Obviously, the savings account can be similarly used, and with either investment the institution has completely liquid funds that earn a reasonable rate of return.

The risk is no greater than for certificates of deposit in the same bank. In practice, an institution using SDRs or savings accounts should not abuse the privilege of immediate availability of funds. Some working guidelines, such as withdrawing only funds that have been on deposit at least one week, may be advisable.

Use of these two methods for investing smaller sums depends on the investment officer's attitude toward keeping maximum available funds invested. Some cash managers do not believe it worth the bother to invest small sums. However, if an average of $75,000 were continually uninvested over a period of one year, the loss of income from the interest that 5% SDRs would have produced is $3,750. This appears to be a substantial sum when compared to the several minutes required by telephone each time a deposit to or withdrawal from the savings account or receipt is made.

A good working relationship with an institution's local bank makes utilization of these forms of investment practical. They will appeal to the institution that has an aggressive investment program and believes in working idle cash to the maximum.

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Short-Term Investments—U.S. Treasury and Agency Securities

THE TWO CLASSIFICATIONS OF SECURITIES COVERED BY THIS CHAPTER contain by far the largest volume of all money market investments. Since they afford low risk, good liquidity, and probably meet more legal restrictions than most other short-term investments, it is surprising that they are not the most-used securities in colleges and universities. However, the tabulation of questionnaire replies in appendix A shows that only 73.3% of institutions use treasury bills. For other U.S. Treasury securities—bonds and notes—the replies indicate only 46.6% of institutions use these and less than one-third make use of agency securities.

Bills, bonds, and notes of the U.S. Treasury are guaranteed as to principal and interest by the U.S. government and they are therefore considered the most risk-free investment possible. A well-organized and easily accessible secondary market assures liquidity superior to other money market investments. These risk-free investments with excellent liquidity prompted Hill to state, "A treasury bill may in fact be considered currency that yields a return to the holder."(1)

Most of the securities referred to as "agencies" technically are not guaranteed by the U.S. government. However, because they are obligations of agencies involving federal sponsorship, in practice it is assumed that the federal government would not permit these securities to go into default. They are therefore considered next in safety to U.S. Treasury obligations. Resale opportunity is not equal to Treasury securities, but a well-organized market for the most widely used of agency investments provides good liquidity.

With this brief introduction to the importance and advantages of these categories of short-term investments, a more detailed discussion of each of the individual securities follows.

U.S. Treasury Bills. Bills are the government's shortest-term obligation used to finance public debt. These are non-interest-bearing securities with maturities of one year or less. They are sold at a discount from face value and the difference between discounted purchase price and maturity face amount represents the income to the investor. The yield on treasury bills normally is less than for other money market securities of similar ma-

turity. On occasion, however, the return may equal or exceed the yield on other investments. The investor should be aware that these occasions present an opportunity to buy the safest and most liquid investment without sacrificing yield.

When first issued, treasury bills are sold at auction through Federal Reserve banks. Although bills are normally purchased by the small investor on the secondary or resale market, as outlined below, the investor may bid at auction on either a competitive or noncompetitive basis. Noncompetitive tenders are accepted to $1 million maximum and are filled at the average of accepted competitive bids. Competitive bids may be made, but in this case the investor may or may not have the bid filled, depending on whether the offered bid price is acceptable. Instructions for bidding may be requested from any Federal Reserve bank. Bids may be forwarded directly to the nearest Federal Reserve bank or entered through the investor's local bank. Treasury bills, bought at auction, involve no sales fee or commission.

Bills maturing in 13 and 26 weeks are normally auctioned on a weekly basis. In most cases the auction takes place on Tuesday, with settlement on Thursday. Other auctions for 52-week bills and maturities of other intermediate dates are held from time to time. The intermediate-date bills are referred to as "tax anticipation" or "cash management" bills. As of August 1977, there were 39 maturities outstanding, totaling $154.2 billion.

The secondary market provides the normal opportunity for an investor of working capital to purchase "treasuries" on any business day that funds for investment are available. Orders for purchases on the resale or secondary market may be entered through a bank or security dealer. Prices are quoted on a percentage discount basis as "bid" price (what one gets if selling) or "ask" price (what one pays if buying). The discount price is computed on a 360-day base, as described below.

Price and yield calculations are computed as in the following formulas:

$$\text{Price} = \text{face value} - \text{discount dollars}$$

$$\text{Discount per \$100 face value} = \frac{(\text{days to maturity})(\text{discount rate})}{360}$$

$$\text{Yield} = \frac{\text{discount amount}}{\text{cost price}} \times \frac{360}{\text{days to maturity}}$$

The following are examples of the use of these formulas under the assumptions that the "asked" discount rate is 5.78 and the bill matures in 98 days.

$$\text{Discount per \$100 value} = \frac{(98 \text{ days})(5.78)}{360 \text{ days}} = \$1.5734444$$

$$\text{Price per \$100 value} = \$100.00 - \$1.5734444 = \$98.426556$$

$$\text{Yield} = \frac{\$1.5734444}{\$98.426556} \times \frac{360}{98} = .0587 = 5.87\% \text{ per annum}$$

The yield calculated above is based on the principal amount invested, $98.426556. This gives a yield comparable to CD rates. Yields indicated in financial newspapers are calculated as above, except the denominator is face value rather than cost price. Such a yield is lower than true return based on actual invested principal. Note that the price above is indicated for each $100 of face value. Treasury bills are in minimum denominations of $10,000 plus multiples of $5,000 above $10,000. Therefore, the price derived above must be multiplied by the number of hundreds of dollars of face value being purchased, that is, multiplied by 1,000 for a $100,000 face value purchase.

There is a difference, called spread, between the "bid" and "ask" discount rates for treasury bills purchased or sold on the secondary market. Therefore, it is not possible to resell a bill immediately without incurring a loss. Bills may usually be sold without any loss of principal after being held for one to three days, provided there has been no adverse change in market level. A simple calculation gives the number of days a treasury bill, purchased on the secondary market, must be held to avoid a loss. This calculation is as follows:

Let SM = sale date to maturity, days (to be determined)
Let PM = purchase date to maturity, days (assume 90)
Let SD = sale discount rate (assume 5.97)
Let PD = purchase discount rate (assume 5.85)

Formulas: PM − SM = days held to avoid loss

$$SM = \frac{PM \times PD}{SD}$$

$$\text{Substituting: } SM = \frac{(90)(5.85)}{5.97} = 88.19 \text{ days}$$

$$PM - SM = 90 - 88 = 2 \text{ days}$$

In the above example, a 90-day bill purchased at a discount rate of 5.85 must be held for two days before it can be sold at a discount rate of 5.97 without loss. The spread (difference between bid and asked) in this case was an unusually wide .12, or 12 basis points. If the spread were a

more normal 6 basis points, the bill would require holding for only one day to avoid a loss. If a resale is contemplated on a bill held for less than four days, the above formula is useful to assure the investor of how many days the investment must be held to avoid loss of principal.

U.S. Treasury Bonds and Notes. Unlike bills, these two obligations are interest-bearing securities with stated interest rates. They are similar except in length of maturity and the fact that bonds are limited to the interest rate allowable by law. When originally issued, notes are for maturities of one to ten years. Bonds are for maturities beyond ten years. On the secondary market, notes and bonds that have been outstanding for a number of years may be purchased to mature in a few days or months. This makes either treasury notes or bonds appropriate short-term investments.

Yields on notes and bonds usually compare with returns on bills of similar maturity. All are equally liquid due to the established secondary market and all have negligible risk to the investor.

Notes and bonds are originally sold at either competitive auction or on fixed-price subscription bases from time to time. They may be held in either registered form or as bearer coupon securities.

Prices for both notes and bonds on the resale market are stated in 32nds of a dollar per $100 of face value. Quotations are normally shown for both bid and asked sides of a transaction and quoted yields are the return if held to maturity. Yield to maturity takes both stated interest rate and price discount or premium, if any, into consideration. A price quotation of 98.15 signifies $98^{15}/_{32}$ per $100 face value, or a dollar and cents price of $98.46875 per $100 face value. Most notes and bonds are issued in multiples of $1,000 denominations. On the above quotation a $100,000 note would be priced at $98,468.75.

Notes and bonds, like treasury bills, are sold in a well-established secondary market through dealers in government securities. Orders for purchase or sale of any issue may be placed through commercial banks or security dealers. The advantages of buying treasury notes or bonds on a direct subscription basis rather than through the secondary market are explored in chapter 22.

Investing in U.S. Treasury securities involves negligible risk of either principal or interest if the securities are held to maturity. However, if an investor desires to dispose of such investments on the secondary market before maturity, there is some chance of loss or gain in yield. This is referred to as market risk or market exposure. It arises from the constantly changing quoted prices resulting from both the economic and money-market factors as well as by open-market trading of the Federal Reserve System. As of August 1977, private investors held approximately $207.6 billion in notes and bonds of the U.S. Treasury.

Federal Agency Securities. The debt obligations to finance various activities sponsored by the federal government are referred to as "agencies." Most of these agency organizations were originally financed by the U.S. Treasury, but are presently owned by their member organizations and the public. These organizations were sponsored by the federal government, and it is therefore generally accepted that Congress would not allow a default on obligations of these agency departments, even though their debts are legal obligations only of the respective organizations and not of the U.S. Treasury. These agency obligations therefore have a slightly higher risk than Treasury securities and they normally offer a somewhat higher yield than treasuries of comparable maturities. Various market factors and the belief that there is little difference in risk permit market yields on treasuries occasionally to surpass even the returns on agencies.

In making comparisons, it is generally conceded that agencies do not technically have the same degree of liquidity as treasury notes, bonds, and bills. However, since there is a well-established secondary market for agencies, liquidity for those referred to as the "big five" is quite adequate for the short-term investor. As of August 1977, $25.2 billion of these securities maturing within one year were outstanding.

Securities representing the five leading agency debt obligations include the financing securities of three farm credit operations and two home financing organizations. The farm credit operations are Federal Land Bank (FLB), Federal Intermediate Credit Bank (FICB), and Bank for Cooperatives (COOP). Home finance agencies are Federal Home Loan Bank (FHLB) and Federal National Mortgage Association (FNMA), known as Fannie Mae. Other agency securities, less widely traded, are Tennessee Valley Authority, Federal Housing Authority, Farmers Home Administration, Export-Import Bank, and Government National Mortgage Association. Of these latter five, all except TVA carry the guarantee of the full faith and credit of the U.S. government. Although there are other less widely recognized agency obligations, only the "big five" are described here.

Debt obligations of the five major agencies, when originally issued, are offered through financial specialists known as "fiscal agents." Each agency maintains its own fiscal agent by contractual arrangement. The agent assembles a group of investment banking firms, brokers, etc. to distribute securities to retail buyers. Once sold, agency issues are then traded in the secondary market in a manner similar to U.S. Treasury securities.

The most common obligations of the "big five" agencies are summarized in tabular form in illustration 17.1.

Most U.S. government securities and agency obligations, when used as short-term investments, will usually be purchased on the secondary

ILLUSTRATION 17.1

MAJOR SECONDARY MARKET SECURITIES OF LISTED AGENCIES*

Agency Name	Security Available	Term of Maturity	Interest Factor	Minimum Denomination
Farm Credit				
Federal Land Bank (FLB)	Bonds	18 months to 15 years	(1)	$ 1,000
Federal Intermediate Credit Bank (FICB)	Debentures	9 months to 4 years	(2)	$ 5,000
Bank for Cooperatives (COOP)	Debentures	6 months to 3½ years	(1)	$ 5,000
Home Finance				
Federal Home Loan Bank (FHLB)	Bonds	1 year to 20 years	(1)	$ 10,000
	Consolidated notes	to 1 year	(3)	$100,000
Federal National Mortgage Association (FNMA)	Capital debentures	5 years to 25 years	(1)	$ 10,000
	Debentures	18 months to 25 years	(1)	$ 1,000** $ 5,000** $ 10,000**
	Discounted notes	30 days to 270 days	(3)	$ 5,000

Interest Factors:
(1) Paid semiannually; figures on 30-day month/360 days.
(2) Same as (1) except 9-month obligation interest paid at maturity.
(3) Discounted security at actual number of days/360 days.

*This information has been excerpted from a summary published by Merrill Lynch Government Securities Inc. under the title "Governments, Agencies, Money Market Instruments: Terms and Features."
**Minimum denomination depends on series of debentures.

market in the form of bearer instruments. As such, these securities are practically as negotiable as cash and their delivery and storage present a problem. To take delivery of these investments would create a costly situation for the short-term investor. Transmittal for physical delivery to other than money center locations would involve substantial insurance

cost, on both purchase and sale or maturity. For reasons of safety, economy, and convenience, having purchased securities held against safekeeping receipts is often the logical delivery solution. (Safekeeping receipts were discussed in chapter 11; purchasers of U.S. Treasury and/or agency investments, more than investors in other money market securities, will find that discussion useful.)

In December 1976, the U.S. Treasury announced the first sale of treasury bills in book-entry form. As of September 1977, all treasury bills are being sold in book-entry form. Under this system, securities are no longer issued, but only a receipt indicating ownership on the Treasury's books is distributed. Eventually all U.S. Treasury securities will be sold under this method, which is expected to reduce costs and protect against loss, theft, and counterfeiting.

Note to Chapter 17

1. Roger W. Hill, Jr., *Cash Management Techniques* (New York: American Management Association, Inc., 1970), p. 44.

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Short-Term Investments—Bankers' Acceptances

TO THE AVERAGE INVESTOR, BANKERS' ACCEPTANCES ARE NOT AS WIDELY known as most other money market investments, but they have one of the longest and most favorable histories of all credit market instruments. This method for financing merchandise shipments was used in Europe before modern times and its use in the United States predates the Civil War. In the modern history of bankers' acceptances, it is claimed that there have been no known cases of loss of principal to investors in nearly 60 years.

Briefly explained, a bankers' acceptance is a time bill of exchange or time draft drawn to cover the shipment and/or storage of goods. In effect, it is a financing document during the shipping or storage period. This document is converted into a negotiable money market instrument in a manner that makes it one of the more risk-free short-term investments.

A typical illustration of the steps in which bankers' acceptance financing originates is as follows. An importer of merchandise requests a letter of credit from his bank; this letter of credit is, in effect, an irrevocable commitment by the importer's bank to extend credit on behalf of the importer. The bank's typical fee is 1½% of the value of credit extended. The importer forwards the letter of credit with instructions to an exporter (supplier) to ship merchandise and to draw a time draft against the importer's bank for the value of the shipment. This draft, with supporting letter of credit and shipping documents, constitutes an instrument that the exporter discounts at his bank. Discounting the time draft at the exporter's bank provides the exporter with immediate payment for his shipment. The discounting bank receives reimbursement by forwarding the draft to the bank that issued the letter of credit. The drawee bank, having paid the exporter's bank, stamps "accepted" on the draft. This acceptance of the draft makes the accepting bank primarily responsible for payment of the draft at maturity and the document becomes a high-grade negotiable instrument. This enables the bank to hold the instrument as an investment or to sell it, at a discount, in an established secondary market. Trading in bankers' acceptances is done by major banks and by established dealers who may also function as government security dealers.

The safety of the bankers' acceptance, from an investor's point of view,

is derived from the fact that payment at maturity is a primary responsibility of the accepting bank and secondarily of the drawer of the draft. This leads to the term "two-name" paper because two parties are responsible for payment of the draft at maturity.

In the above chain of events, the exporter has received immediate payment in domestic funds and without concern for the credit standing of his distant customer, the importer. The accepting bank, by reselling the bankers' acceptance, has not tied up any of its funds, as would be the case with a direct loan to the importer.

Because of the well-established secondary market for bankers' acceptances, both safety and liquidity are nearly as attractive as for treasury bills. Due to the two-name aspect of the acceptance, it probably ranks above CDs of the accepting bank in safety. Rates of return to an investor, as a result of purchase at a discount, are comparable to other money market investments of similar maturity and risk. However, it may be found that the actual rate of return is slightly higher than that of similar instruments; this is a result of supply and demand. The acceptance is not as well known as the CD and treasury bill, and the demand from investors is therefore somewhat lower. Lower demand leads to a higher rate of return from a similar degree of risk, and this works to the investor's advantage.

From the short-term investor's point of view, the bankers' acceptance may have two slight disadvantages as compared with a primary issue CD. The bankers' acceptance, having originated from a commercial transaction, has a fixed or stated face value and maturity. The amount and maturity cannot always be adapted to the investor's available amount and maturity requirements. The disadvantage of a preset maturity up to 270 days, however, should constitute no real problem because of the established resale market, which makes possible the liquidation of the investment at any desired date.

Purchase of bankers' acceptances may be arranged through security dealers or by direct contact with major money market or regional banks. Since acceptances are a discounted investment, pricing and yield computations follow the formulas developed in the preceding chapter on treasury bills.

Liquidity of bankers' acceptances is enhanced by a high degree of marketability in the established secondary market. This market is also strengthened by Federal Reserve Bank authority to buy and sell prime bankers' acceptances with maturities up to nine months. In addition, acceptances may be used by banks as collateral at the discount window to support bank borrowing from the Federal Reserve.

Since they are based primarily on foreign trade transactions, the volume

of bankers' acceptances fluctuates with the volume of foreign trade. As of June 1977, the volume of outstanding acceptances was $23.4 billion, which was just over one-third the volume of money market CDs.

The safety of an investment in bankers' acceptances depends on the soundness of the accepting bank. The courts have ruled, however, that even if an accepting bank were to become insolvent, the holder of an acceptance must be paid with funds collected at maturity of the obligation, with the bank acting as a conduit for this payment. This legal status appears to give an acceptance a lower degree of risk than the well-known and popular bank certificate of deposit.

The tabulation of questionnaire replies in appendix A indicates that bankers' acceptances are one of the least-used short-term investments employed by colleges and universities. Less than one-fifth of replying institutions reported that they invest in bankers' acceptances. This indicates that, under some market conditions, a number of institutions may be overlooking excellent investment opportunities.

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Short-Term Investments—Commercial Paper

COMMERCIAL PAPER IS THE TERM APPLIED TO UNSECURED SHORT-TERM promissory notes of industrial and/or financial organizations. Such notes must mature in not more than 270 days in order to avoid SEC requirement of registration under the regulations governing longer-term borrowing. As a short-term method for borrowing, commercial paper is normally used by industrial firms to meet seasonal requirements covering inventory and accounts receivable financing.

There are two classifications of commercial paper; they are similar in all respects except for origin and method of marketing to the investor. Finance paper and industrial paper are the commonly used terms signifying the origin of the instrument. On the marketing side of the transaction, the terms "direct issue" and "dealer paper" apply to finance and industrial paper, respectively.

Finance paper is issued by holding companies of major banks and by the finance subsidiaries of nationally recognized organizations such as major automobile manufacturers, mail-order houses, and appliance manufacturers. These finance subsidiaries issue commercial paper primarily to finance the accounts receivable of parent organizations. Such finance paper is marketed either directly to the investor by the issuer or through major banks acting as issuing agents for the finance organization. Hence the term "direct issue" paper.

Industrial commercial paper represents the unsecured promissory notes of major industrial corporations. The companies sell such paper to dealer organizations that in turn resell it to investors. For this reason industrial paper is often referred to as dealer paper.

Since commercial paper is not related to specific commercial transactions, the denomination may be easily tailored to the investor's needs. Denominations in multiples of $1,000 from as low as $5,000 are available from some issuers. Maturities may range from 3 to 270 days.

Commercial paper is usually quoted at a discount on a 360-day basis, similar to the pricing of treasury bills and bankers' acceptances. However, in some instances paper will be issued on an interest-bearing basis similar to investment in CDs if the investor prefers such as basis.

The degree of risk of commercial paper depends entirely on the creditworthiness of the issuing organization. Therefore, the investor needs to carefully consider the rating of the commercial paper issuer. Standard & Poor's and Moody's both evaluate most commercial paper, and these ratings are normally considered by the investor. Certain banks and finance organizations, not rated by the two services mentioned above, may carry a Fitch appraisal, which is comparable to Moody's or Standard & Poor's. Ratings are designated by letter and number, in which increasing numerical designation represents correspondingly greater risk. Prime paper of lowest risk carries ratings of P-1 (Moody) or A-1 (Standard & Poor's) or a comparable F-1 (Fitch).

The total volume of outstanding commercial paper varies with economic and financial conditions. As of July 1977, total outstanding commercial paper was $58.7 billion, over 2½ times the volume of bankers' acceptances, and about nine-tenths the amount of negotiable CDs.

An investor must realize that there is no resale market for commercial paper; this makes selection of maturity an important consideration. Lack of a secondary market may be partially offset by special repurchase arrangements, which may sometimes be possible through the dealer or direct issue organization. Such repurchase provisions permit the investor to liquidate the investment before maturity. Repurchase arrangements are not automatic, however, and must be specifically stated or agreed to.

Commercial paper may be subject to many special and advantageous provisions of which the investor should be aware; these vary from one issuer to another. Some representative provisions may be:

1. *Rate protection.* Increases in posted rates occurring within three business days following the date of a transaction are offered to investors purchasing notes with maturities of 30 days or longer.

2. *Advance placements.* Funds committed up to five days prior to desired transaction date will be accepted at the rate on the date of commitment or date of transaction, whichever is higher.

3. *Interrupted investment.* If the investor is aware of a single date, within the term of a note, when funds are needed, an arrangement may be made on the original transaction date for an interruption of one business day, known as a "hole-in-the-middle" investment.

4. *Rate extension.* Maturing notes may, at the option of the investor, be extended for up to five business days at the same rate, provided the note has been outstanding for at least 30 calendar days.

The above provisions, allowed by J.C. Penney Financial Corporation, are representative of provisions that may be available through direct issuers of commercial paper. An investor in such commercial paper should

be knowledgeable about those special features offered by any direct issuer whose paper is considered for purchase.

As with other bearer instruments, the investor should be concerned with safekeeping of the security rather than physical delivery of commercial paper. Safekeeping, as discussed in chapter 11, is applicable here. The institutional investor normally provides payment at a designated bank against delivery of specific commercial paper to be held in safekeeping at that bank for the investor. Upon maturity, the safekeeping bank is requested to collect funds against the maturing paper and either deposit the proceeds to the investor's account or transfer according to instruction.

Although commercial paper purchased from a dealer is normally sold on a discount basis, the dealer may quote only the effective yield. It is convenient for the investor to be able to convert such an effective yield to an actual dollar discount price. A modification of the pricing formula, as developed in the chapter on treasury bills, will serve to convert quoted yield to discount price. To illustrate, assume a $100,000 investment quoted as yielding 7⅜% in 145 days. At what dollar price will it be purchased? Let X equal this unknown discount cost. Then:

$$\text{Yield rate} \times \text{cost} \times \frac{\text{days to maturity}}{360} + \text{cost} = \$100{,}000$$

$$.07375 \times X \times \frac{145}{360} + X = \$100{,}000$$

Yield for 145 days + cost = par maturity value

Solving:

$$(.07375)(X)(.402778) + X = \$100{,}000$$

$$1.0297048\ X = \$100{,}000$$

X = $97,115.21, or cost of $100,000 investment to yield 7⅜% per annum in 145 days.

Commercial paper was used as a short-term investment by over half of the institutions replying to the questionnaire as tabulated in appendix A. However, the fact that only 22.4% of public institutions, compared with 76% of private institutions, used commercial paper leads one to wonder whether legal restrictions prevent a number of public institutions from using this form of investment. Another interesting observation is that

smaller institutions use commercial paper to a greater extent than do larger institutions.

At times the risk on prime commercial paper may be comparable to or lower than that on CDs. The rate of return may be higher. When commercial paper is subject to repurchase provisions with the issuer or dealer, liquidity may be similar to major money market CDs and better than local or regional bank CDs. Under these circumstances, the investor who is restricted from use of prime commercial paper has a distinct handicap.

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Short-Term Investments—Repurchase Agreements

THE REPURCHASE AGREEMENT IS NOT ANOTHER KIND OF INVESTMENT paper, but rather a readaptation of the terms of an instrument already in effect. It is a readjustment of the maturity of an existing investment to meet the maturity needs of both borrower and lender (investor), which at the same time relieves the investor of all market risk in a very short-term investment.

Broadly and simply defined, a repurchase agreement is an arrangement that involves the sale of an existing money market instrument, with the condition that after a stated period, the seller (maker of the repurchase agreement) will buy back the same securities at a predetermined price or yield. Repurchase agreements are familiarly referred to as repos or RPs. Although the repo is a method by which the Federal Reserve System adjusts or controls bank reserves and money supply and by which government security dealers finance their inventories, the discussion here is limited to the relationship of repos to the institutional short-term investor.

Repos may be based on any money market instrument that is agreeable to both the seller and buyer (investor). However, repos are most commonly based on either U.S. Treasury or U.S. agency securities, and are most frequently negotiated with a bank or a security dealer-broker. In such instance, the holder of a U.S. Treasury or agency security is selling that security at approximate current market value, and agrees to repurchase it at the same value plus a stated interest rate or yield after a certain period has elapsed. The investor has, in this instance, purchased U.S. Treasury securities for a very short period and must resell them, per agreement, at expiration of the specified time. Repurchase agreements normally run from one or several days to two or three weeks.

Because repos involve considerable recordkeeping detail and actual transfer of title to securities, many banks consider the expense too great for repos of less than three days or, if the period is shorter than three days, they may require that principal be in amounts of $1 million or more. Also, a repurchase agreement may be arranged to run continuously until terminated by either the seller or investor. Such termination would result when a change of interest rates makes the agreement unsatisfactory for either the buyer or seller.

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The yield on a repurchase agreement is usually set at a rate comparable to very short-term investments such as the federal funds rate or short-term treasury bills. It should be noted that such yield is not affected, after the agreement is made, by fluctuation of money market rates or by the market price of the securities on which the repo is based.

As previously noted, repos are primarily a very short-term investment. Ideally, the institutional investor finds the repo a convenient and productive way to invest substantial sums of idle cash that will be needed in a very short time. If such money were invested in treasury bills and the bills were resold within a few days to make funds available for disbursement, the investor is exposed to two risks: first, the treasury bill resold within a short time after purchase has its yield substantially eroded by the spread between bid and asked market quotations; second, if any considerable market fluctuation depresses the market value of the treasury bill, the short-term holder suffers an additional erosion of yield.

Insofar as the investor-purchaser of a repo has taken title to the underlying securities on which the agreement is based, the risk of principal relates to the safety of the securities on which a repo is based. The investor either takes possession of the collateral securities or has them held in safekeeping by an organization in which he has confidence.

The actual agreement in a repo may be either a letter from the seller or a printed form specifying the principal amount, maturity amount or yield, maturity date, collateral security on which the repo is based, and names of the selling and investing parties. A specific statement is made in the agreement to the effect that the investor will resell the collateral securities to the maker of the agreement at maturity.

Advantages of the repurchase agreement for the institutional investor may be summarized as follows:

1. This is one of the lowest-risk short-term investments.
2. Maturities may be short and tailored to the investor's exact need.
3. There is absolutely no market risk from rate fluctuation, which can adversely affect other investments sold before maturity in order to realize short-term liquidity.
4. A repo can be an ideal temporary investment until firm plans for longer-term investments can be made. *Example:* A large amount of funds unexpectedly available on Friday afternoon can be placed in a repo to mature on Monday or Tuesday, thereby allowing the investment officer to more carefully plan investments of longer maturity when all money markets are open.

Related to the repo is the "reverse repo." This may be an ideal temporary fund-raising method for covering an unexpected need for cash several days before funds will normally be available. The reverse repo is the sale

by the institution of securities that the institution owns, with an agreement to buy those same securities back at a stated later date. This transaction is especially simple when the institution owns securities that are held in safekeeping by a bank or security dealer. Transfer of title for the short period of a reverse repo presents no problem when selling to the safekeeping organization. The only apparent reason for designating this type of agreement as "reverse" is that the normal seller and buyer are in reverse positions. The bank that usually sells short-term securities to the institutional investor becomes, in a reverse repo, the buyer of securities from the normal investor. The agreement is exactly the same as a repo, except that the parties are reversed.

Not only is the reverse repo a convenient temporary fund-raising arrangement, but it may be used to obtain funds even where legal restrictions prevent short-term borrowing by an institution. The reverse repo has an effect similar to short-term borrowing, but is not legally a loan. It is an actual sale and subsequent repurchase of an investment security. Title to investments actually transfers and there is no liability recorded on the books of account, as would result from any kind of loan. The liability that does exist is a commitment to make an investment, that is, to buy back the investment sold under the reverse agreement.

An example of the convenience of reverse repos to an institution may be illustrated by an occurrence at the author's institution. Payroll normally falls due for payment on Monday or the first business day following, if Monday is a holiday. Investments made several months previously and maturing on Tuesday after Labor Day were scheduled to cover payroll. Only a few days before normal payday, it was decided to make an exception and pay that payroll on the Friday before Labor Day. Selling treasury bills on Friday and buying them back on Tuesday from proceeds of maturing investments would have involved a cost of over $284 on a relatively low-denomination transaction of only $400,000. This cost is due to the spread between bid and ask quotations on treasury bills. A four-day reverse repo, based on those same treasury bills and at 5%, cost $222. The reverse repo was a simpler transaction and cost $62 less than a forced market sale of those same securities.

An additional advantage of both the repo and reverse repo is that either can be negotiated late in the day, after other money markets have closed.

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Short-Term Investments—Money Market Funds and Other Investments

IN THIS CHAPTER, THE FOLLOWING INVESTMENTS ARE DISCUSSED: MONEY market funds, the Common Fund, master notes, open time deposits, documented discount notes, and tax-exempt notes.

Money Market Funds. Developed in the early 1970s, money market funds are simply mutual funds that invest shareholders' money in the various money market instruments discussed in chapters 15 through 20. During 1974 and 1975, when short-term interest rates were historically high and when the small investor was excluded from direct money market participation by high-denomination requirements, money market funds became popular. In 1976, when interest rates fell to the 5% to 6% range, money market funds lost much of their appeal for the small investor, but gained the attention of institutional investors. Institutions found that money market funds are a convenient investment for the most liquid parts of a portfolio. This is a result of special features provided by many funds, whereby fund investments are comparable to checking accounts in which funds earn interest until the date a released check clears against the fund account.

Money market funds are either no-load or very low-load (sales fee). Minimum deposit requirements of $1,000 or $2,500 exclude the very small individual investor but certainly present no handicap to institutions. Portfolios of the money market funds range from 100% in U.S. Treasury securities to various proportions of CDs of major banks, commercial paper, repurchase agreements, corporate notes, intermediate-term bonds, etc.

The fact that redemption of investment shares is possible, on demand and without redemption fee, makes the money market fund investment very liquid. In addition, some funds offer a check-writing privilege. Under this provision the investor is supplied with special checks which may be written against his investment in the fund. The check must usually be for $500 or more. Investment in the fund is reduced when the check clears against a special bank account maintained by the fund. Investments earn daily interest until the date that a written check clears against the special bank account. The investor thus takes full advantage of all disbursement float time. In some cases the checking service is entirely without charge to the

investor, and the investor receives canceled checks as proof of payment, as with a normal checking account.

Investment risk depends on reliability of the various organizations that operate the many commercial money market funds and on the portfolio in which fund investments are made. The investor in a money market fund can somewhat determine the degree of risk by studying the portfolio composition and average maturity of available funds.

Yields of money market funds also depend on the yield level of various instruments in which fund investments are made. Because fund operators charge a management fee, typically ½% of fund assets, yield to the investor is reduced by the amount of such fee. The large institutional investor who is knowledgeable in money market operations can realize a higher return on directly placed investments than by participation in a fund. However, the institution that does not have expertise or time for continuous investment attention may benefit by using a money market fund for the shorter-term and more liquid portion of its investment portfolio.

The Common Fund. The Common Fund for Short Term Investments should have particular appeal to all educational institutions interested in money market funds as investments. This fund, established in September 1974, operates as a common trust fund under the banking laws, with Philadelphia National Bank serving as trustee. Management of the portfolio is under direction of a New York-based subsidiary of Philadelphia National Bank specializing in fixed-income securities management. The Common Fund for Nonprofit Institutions, an organization originally established for equity investment of college and university funds, serves as representative of those educational institutions participating in the Common Fund for Short Term Investments under the common trust fund arrangement. This fund is available only to nonprofit colleges, universities, and private schools that are or become members of the sponsoring Common Fund organization.

Specific advantages of participation in the Common Fund for Short Term Investments are claimed to be as follows:

1. Professional management of the portfolio provides active management and trading of securities to take advantage of opportunities offered by changing market conditions.

2. A carefully organized cash transfer system with computer techniques speeds investments and withdrawals of funds and thereby reduces uninvested float.

3. Inflow of funds from a large number of investing institutions offsets withdrawals by other institutions. A more stable portfolio is thereby maintained than is possible for any single institution, enabling investment of core funds in longer-term, higher-yielding investments.

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4. With a $5,000 minimum for investment and/or withdrawal transactions, and with same-day effectiveness on both types of transactions when handled through federal funds wire, great flexibility and liquidity are offered.

5. In summary, the fund's purpose is stated as providing a safe, convenient, and profitable means of keeping all types of temporary funds fully invested from the day they become available for investment to the day they are needed for disbursement.

The fund consistently has been able to provide earnings at or above the quarterly average rate of return on 91-day treasury bills, regardless of the length of time for which an investment is made. The institutional investment manager will immediately recognize this as an excellent placement for that most liquid part of the portfolio that he wishes to invest on a demand basis while insuring a yield at or above the 91-day treasury bill rates. For short periods, this can provide rate and liquidity advantages even greater than repurchase agreements.

Institutions interested in this fund, specifically for educational institutions, may request a descriptive brochure including copies of governing legal documents, participation forms, authorizing resolutions, and instructions. Requests should be directed to: The Common Fund, 635 Madison Avenue, New York, N.Y. 10022.

This chapter is concluded by mentioning several other forms of short-term investments used by a smaller number of institutions. These investments are master notes, open time deposits, and documented discount notes.

Master Notes. The master note is an arrangement, usually through a trust department, whereby an institutional investor invests at a rate comparable to longer-term commercial paper and has the flexibility of adding to or decreasing investments from day to day.

Under this form of investment, a trust department of a major bank sets up a demand note arrangement for providing funds to leading financial corporations. Customers of the trust department provide investment funds representing the capital for the demand note borrowing by the contracting finance companies.

This is not a pooled or mutual fund type of arrangement, since each contracting investor has a separate account. The contracting finance companies normally carry a prime rating, and the plan may assure the investor a rate typically equal to the best prime commercial paper rate in the 30- to 180-day maturity range. The investor moves in and out of the investment at par, thereby avoiding the market risk that may exist with various other investments.

Under a master note agreement, transactions may be denominated in multiples as low as $1,000. The trust department establishes a separate ac-

count for each investing organization and acts as an agency for the investing institution in channeling funds into the demand note contract.

Although the gross return for this type of investment appears to be quite advantageous, it should be realized that a service fee, based on the quarterly average amount of investments, may be in the range of ⅛% to ⅜% or more per annum.

Open Time Deposits. An open time deposit arrangement with a bank is like a CD without a fixed maturity. The rate of return may be the 180-day CD rate, but the investor is one of many in the open time deposit fund. Therefore, individual investors are at liberty to invest and withdraw without time restriction. Since the CD represents funds of many investors, money flows in from some and out to others so that the basic fund is a CD of extended duration and in excess of $100,000. Therefore, funds of a single investor in the open time deposit are not limited by the 30-day minimum CD maturity under Federal Reserve Regulation Q.

The open time deposit contract with a bank thus provides the advantages of a CD investment without the restricted liquidity of an individual CD.

Documented Discount Notes. Although documented discount notes, DDNs, do not seem to be an investment used by many educational institutions, the investment officer should be aware of this investment. Usually the DDN is the short-term borrowing of a local industrial concern that may not have a rating, and thus is unable to issue commercial paper, or is borrowing in increments smaller than required by a commercial paper issue.

The local concern approaches its local bank, which agrees to issue a letter of credit. When this document is attached to the note payable of the borrower, the credit of the bank is added to the note. The DDN thus becomes a form of commercial paper to which the credit of a local bank is added in place of a national commercial paper rating.

When resold as a money market investment, the DDN is, in most respects, similar to commercial paper. The bank letter of credit, added to or documenting the promissory note, adds an aspect much like a bankers' acceptance. If the institution's investment officer is offered such an obligation by the local bank, he may well look with favor on the safety of this investment, while realizing that the transaction is helping to finance local industry.

Tax-Exempt Notes. In concluding this chapter it should be pointed out that, whereas short-term tax-exempt notes are an important investment for taxable organizations, they have no advantage to the tax-exempt educational investor. Tax-exempt investments carry yields substantially below all money market taxable securities, and therefore are of value only to those investors seeking tax-exempt income.

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Developing Investment Sources

MANY ALTERNATIVES SHOULD BE INVESTIGATED IN MAKING SHORT-TERM investment decisions. To do this, it is essential to have a wide variety of sources for short-term investments. (As a convenient summary of the most common money market investments, discussed in chapters 15 through 21, a chart of such alternative investment media is presented as appendix C.) A number of bank relationships in various geographic areas (if legal restrictions permit) and several security dealers with whom a relationship has been established will be necessary for consideration of the many alternatives that exist for placing investments. Direct placement relationships with money market funds and with direct issuers of commercial paper also add alternatives.

The first series of questions an inexperienced investment officer might ask is: How do I make these contacts? How do I decide who to call? Where do I start? The answer to the last question may be the best beginning. Such a person should talk with investment officers of other educational institutions. Ask with whom they deal on a regional or money-center bank basis as well as what security dealers they use. Ask for their experiences, favorable or unfavorable, and the name of the contact at each organization.

In addition to the above source of information, it may be wise to consider the development of bank relationships in other geographic areas; this requires some research and writing a few letters. The research comes first and consists of analyzing bank financial data to determine which banks meet stated institutional guidelines or personally developed standards, if no guidelines exist. In considering a bank outside of the local area, perhaps a certain size indicated by either total assets or deposits should be required. Perhaps capitalization should be at a certain level, such as 5% of assets, or some other percentage of either assets or deposits. Proportions of various types of deposit, loan to deposit ratio, trends of past earnings, and various other comparisons may also be considered to help assure an investor of safety under adverse conditions.

Bank financial data are not difficult to obtain. A direct approach would be a letter to individual banks requesting their latest published financial statement. The library may have Moody's *Banks and Finance Manual*, or

a local bank or library may have Polk's *Bank Directory*. These sources will give condensed balance sheet information that may be nearly a year old, but current enough for decisions as to which institutions to give further consideration. In recent years *Business Week* magazine has featured a quarterly review of the banking industry. Such articles in various business publications provide much financial data and some ratio analyses for banks and bank holding companies in all areas of the country. Bank analysis publications suitable for in-depth professional analysis are *Bank Data—Detail* and *Bank Data—Composite* by A. G. Becker & Co.; *Bancompare* by David C. Cates & Co., Inc., 20 Exchange Place, New York, N.Y. 10005; *Sheshunoff Bank Quality Analysis* and *Sheshunoff 1000 Largest Banks* by Sheshunoff & Co., Inc., P.O. Box 13203, Capitol Station, Austin, Texas 78711. These are rather costly services, and unless they were made available to educational institutions through a bank or other organization, they would be beyond the scope needed for the general analysis required to develop investment sources. These are mentioned merely to advise investment officers that analyses of bank data are available, if desired.

Following a study of bank financial data and a decision as to which banks will be considered as potential sources of investment, the next step is to write a brief letter to the attention of the bond department of each such bank. Explain the institution's program, average size of the portfolio, denomination of average CD investments purchased, and their usual maturity term. Also, specify requirements for both investment and maturity disposition of funds and ask whether safekeeping service involves a fee. Request that, if the bank is interested in being considered as a potential source for the institution's investments, it provide the name of the person to call and forward a condensed copy of the most recent financial statement. Half the banks may ignore the request entirely, but from the replies that are received, some satisfactory and productive relationships may be developed.

Similarly, by telephone or letter, area or national security dealer offices may be approached. In this case the approach is facilitated if a name is supplied by investment officers of other institutions having a relationship with one or more security dealers.

After contacts with banks and/or dealers have been established, and understandings of purchase and maturity procedures arrived at, it may be advisable to place a small investment having a relatively short maturity with each new source to see how the relationship works in practice. A small initial investment, if satisfactory in all mechanical respects, can lead to millions of dollars of investments as confidence in a particular organization grows. One mechanical aspect of transactions with a dealer is delivery arrangements. If a dealer can arrange delivery of securities against

payment at a major bank that is a correspondent of the educational institution's bank, mechanics of the transaction are usually more satisfactory. With such an arrangement, the delivery-point bank usually holds the investment security in safekeeping for its correspondent bank as agent for the college or university; this simplifies both purchase and maturity transactions.

In considering various alternatives for investing, it is important not to overlook direct subscription, through the Federal Reserve Bank, for new issues of U.S. Treasury notes or bonds. Subscriptions to new issues may be entered directly or through the institution's bank. Such a purchase eliminates the sales charge (spread between bid and asked price) that the investor incurs when buying in the government securities secondary or resale market. In a period of falling interest rates, a three- to ten-year maturity can be purchased, by subscription to an original issue, and then resold after a short-term holding period at a higher return than possible when buying at "ask" quotation on the secondary market.

Just as a subscription to U.S. Treasury notes or bonds avoids the bid price cost differential on an investment purchase, so too, a bid at weekly auctions for treasury bills avoids a dealer's fee buried in the bid-ask spread. Such auction bids may be placed with a Federal Reserve Bank or through one's local bank, and bids may be on either a competitive or noncompetitive basis. Competitive bids are usually placed by financial institutions and professional investors, and the bidder on this basis runs the risk of not being a successful bidder. Noncompetitive bids or tenders are filled at the average price between the accepted high and low competitive tenders. Any Federal Reserve branch bank will supply complete instructions for bidding on U.S. Treasury securities.

In summary, it is important to develop a variety of investment sources so that many alternatives are possible when placing investments. If one knows who the investment officers are at other institutions, advice is as near as the telephone.

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Investment Yields—Some Concerns

THE PRECEDING CHAPTER COVERED ONE CONCERN APPLICABLE TO INcreasing the effectiveness of an investment program, that is, developing many sources of supply, while a following chapter presents some specific methods for maximizing the return on investments. This chapter explores two broad considerations relating to effective investing, namely, portfolio management funding theory and rate considerations.

Portfolio Management. Relationship of the portfolio to anticipated interest rate movement will be covered in chapter 24, but here portfolio management is considered from the aspect of investing to meet future specific requirements for working capital. Three general funding methods relating to portfolio management should be considered. These are specific funding, complete liquidity, and a combination of the two.

Specific funding implies investing in specific maturities to meet all projected cash requirements. Disbursements for payrolls, trust debt service payments, withholding tax deposits, utility payments, and major scheduled supplier payments are typical of the cash needs that can be funded by specific investment maturities. The prime advantage of this type of investing is that it eliminates all market risk. The securities are held to maturity and those yields, anticipated when the investment is made, are always realized. However, this feature eliminates the possibility of yield improvement through swapping or switching, as discussed in the following chapter. Another disadvantage is that specific funding of investments deprives the investment officer of opportunities to invest in maturities carrying rate advantages. Investing to meet a payroll in 55 days may not be wise if a 60-day liquid investment may produce a yield advantage of 25 basis points.

Complete liquidity is the second method of portfolio management. This is the exact reverse of the method described above. Therefore, the disadvantages of specific funding become the prime advantages of the complete liquidity method. By using completely liquid investments the portfolio manager sells investments whenever working capital is needed. He invests to make use of rate differentials on various maturities and continually is able to consider "swapping" to improve yield (see chapter 24). Under this investment method, the portfolio has considerable exposure to market risk when an investment is sold to fund the requirements for working capital. For example, if interest rate trends have been increasing, a

90-day maturity sold three weeks early to cover a disbursement will produce a smaller rate of return than if it were held to maturity date.

A combination of specific funding and complete liquidity methods is the third manner of portfolio management to meet future disbursement needs. Combination implies investing in specific maturities to cover only large future cash needs of accurately determinable amounts. Many of these needs were mentioned under the first method of investment funding. Under this investment method, major working capital requirements are met with specific maturities only when maturity dates correspond with rate advantages at the time funds are available for making the investments. Covering a payroll due in 87 days with a specific maturity is difficult to justify if there is a definite rate advantage (20 or 30 basis points) on a 90-day investment. Under combination funding, a portion of the portfolio is carried in liquid investments that are converted to cash whenever funds are needed for those requirements not covered by specific maturities. Here the specific maturity portion of the portfolio avoids all market risk and the liquid portion of investments provides the investment manager with opportunities for increasing yield through "switching" security types or maturities. Both specific and liquid portions of the portfolio are originally invested to take advantage of the best market rates available when purchases are made. In summary, it is suggested that this method of portfolio management has all of the advantages and none of the disadvantages of the two previous methods. It must be pointed out, however, that this type of portfolio management involves more of the manager's time and requires a close study of markets, economic news, and all other technical aspects of investment management.

Rate Considerations. Market rates of return must be one of the prime concerns in maximizing investment effectiveness. The investment manager should be aware that rates change in anticipation of the factors that affect the money market; for this reason, the investment officer should continually study financial and economic news. (Some sources of such information are outlined in chapter 26.)

Three main factors that influence money market rates are:

1. Federal Reserve actions taken in efforts to control the money supply. Large purchases of U.S. Treasury securities by the Fed tend to depress money market rates; sales have the reverse effect.

2. Total supply of funds and demand for credit. This affects the money market just as supply and demand factors influence any market. Demand for credit, an increase in public or private borrowing, has a definite upward pressure on rates of return, and this pressure on rates depresses the market value of investments already held. In such a market, there will be a decrease in yield on any investment liquidated before maturity.

3. U.S. Treasury financing of public debt. This affects the demand for investment funds and can be a major demand factor affecting future rate expectations. The volume of public debt financing, the timing of Treasury borrowing, and the maturity ranges offered influence rates. If Treasury borrowing is in the intermediate and long-term maturity ranges, the effect on money market investment rates is less than if treasury bills and short-term notes are the methods used for increased public debt coverage.

Rate comparability is an important concern when making investment decisions. It must be recognized that rate quotations for money market investments are not comparable among various types of securities.

A conversion of various rates to bond-equivalent yields is often made. This type of conversion has the advantage of being widely accepted and often published. A disadvantage, from the standpoint of the short-term investment manager, is the fact that this is a conversion to yields on long-term investments. The bond-equivalent rate is based on a 365-day year, which covers the coupon interest period of long-term corporate bonds as well as U.S. Treasury notes and bonds.

Most short-term investments have a 360-day basis. If the actual 360-day yield is known, it may be converted to bond-equivalent by multiplying by 365/360 (or 1.0138888) when such comparability is desired.

A conversion of all short-term rates to the CD 360-day basis seems more logical, because CDs are the most popular type of investment of colleges and universities. Rates on certificates of deposit are readily available and CDs seem to be an acceptable standard to which all short-term yields can be compared. Outlined below are the five bases on which various securities have their yields computed. Money market securities relating to each basis are outlined and the method for converting all respective yields to a basis comparable to CD yields of the first category is shown.

1. Interest-bearing securities, sold at par and with interest payable at maturity for the actual days to maturity on a 360-day year, are the first type. Money market investments falling in this category are:

   a. Most negotiable certificates of deposit.
   b. SDRs.
   c. Repurchase agreements.

2. Securities discounted on actual days to maturity on a 360-day year are a second type of investment. These securities are:

   a. Treasury bills.
   b. Bankers' acceptances.
   c. Commercial paper.

Here the return (face value minus discounted price) merely needs to be divided by discounted price to determine a yield rate that, if multiplied by 360/days to maturity, is comparable to CD yield rate on a 360-day year.

For example, a 90-day bankers' acceptance for $144,000, purchased at an 8% discount, has a purchase price of $141,120. The yield, however, is comparable to an 8.16% CD on a 360-day base, determined as follows:

$$\frac{\$144{,}000 - \$141{,}120}{\$141{,}120} \times \frac{360}{90} = .0816$$

This investment, with an 8% discount basis, obviously has a yield 16 basis points better than an 8% CD issued on the normal basis of actual days/360-day year.

3. Interest-bearing securities with interest payable periodically, and each month having 30 days in a 360-day year, are a third category of short-term investment. It should be noted that interest is not computed for actual elapsed days. This basis applies primarily to federal agency obligations. To compare with the normal CD yield, the rate of return of the agency issue is multiplied by days paid/actual days elapsed. For example, if 8% is payable semiannually on March 15 and September 15, the September 15 yield compared to normal CD yield is only 7.83%, computed as follows:

$$(.08)\ (180/184) = .07826$$

Here, of course, the 8% coupon yield of the agency obligation is 17 basis points less than the comparable yield on an 8% CD.

4. Interest-bearing securities, with interest payable semiannually on the basis of actual days in the coupon period on a 365-day year, are a fourth type of money market investment. These obligations are:

a. U.S. Treasury notes.
b. U.S. Treasury bonds.

To compare with the yield on normal CDs, the rate of return on this investment must be multiplied by the factor:

$$\frac{\text{actual days held in one-half of 360-day year}}{\text{actual days in semiannual period}}$$

For example, a U.S. Treasury note with an 8% coupon payable March 15 and September 15, as in the previous example, will have a similar conversion factor and, therefore, a 7.83% yield on September 15 as compared with an 8% CD on a normal 360-day basis. Although this type of obligation has a 365-day basis, the factor works out the same as with the 360-day basis agency obligations because agency security interest payment is based on 30-day months. Payment of U.S. Treasury bond and note interest is one-half of the annual amount in each semiannual period, regardless of the actual number of days in that period. Therefore, the numerator of the conversion factor is 180 for U.S. Treasury bonds and notes and for

agency obligations. The denominator in both cases is actual days elapsed in the semiannual period. The conversion works out the same here as for agency obligations only when dealing with complete semiannual periods. For less than semiannual periods, the conversion numerator will differ between agencies and treasuries.

5. Interest-bearing securities with interest payable at maturity on a 365-day year are a fifth category, which is merely a variation of the first type mentioned. These are certificates of deposit and SDRs of a few banks not using the 360-day basis shown in item (1) above. To convert this return to one comparable to the first category, multiply the stated rate by the factor 360/365, or .9863. An example is a CD with an 8% stated rate for 365 days. This compares with a rate of 7.89% for 360 days and is converted as follows:

$$(.08)\ (360/365) = .0789$$

The yield on this type of 8% CD is obviously not as satisfactory as that on an 8% CD on the basis of actual days/360 days.

The preceding summaries of five variations for calculating yields of the different money market investments indicate the necessity for converting those various yields to a common basis. This should be done before judging which investment will produce the best yield. For example, 8% on a 360-day-basis CD maturing in 180 days compares with:

1. 7.84% discount rate on obligations such as treasury bills, acceptances, and commercial paper.
2. 8.044% to 8.177% on agency obligations and U.S. Treasury bonds and notes, depending on the number of actual days in the semiannual period.
3. 8.11% on a CD that is based on a 365-day year.

Short-term portfolios of colleges and universities consist primarily of CDs on a 360-day basis and on discount obligations. Therefore, a convenient conversion table is presented for relating all discount rates (treasury bills, bankers' acceptances, and commercial paper) to comparable CD yields. In table 23.1, add to the discount rate shown in the first column the appropriate factor for various maturities, shown for maturities of 30 days to 180 days, to arrive at comparable CD yields.

For computing CD rates comparable to discount rates for maturities or rates not included in the table, the following formula may be used:

$$\frac{\text{discount rate} \times \text{days to maturity}/360}{1 - (\text{discount rate} \times \text{days to maturity}/360)} \times \frac{360}{\text{days to maturity}} = \text{CD rate}$$

TABLE 23.1

DISCOUNT OBLIGATION RATE CONVERSION TO CD EQUIVALENT YIELD

	Add-on to Discount Rate					
Discount rates	30 days	60 days	90 days	120 days	150 days	180 days
4½%	.02	.03	.05	.07	.09	.10
4¾	.02	.04	.06	.08	.10	.12
5	.02	.04	.06	.08	.11	.13
5¼	.02	.05	.07	.09	.12	.14
5½	.03	.05	.08	.10	.13	.16
5¾	.03	.06	.08	.11	.14	.17
6	.03	.06	.09	.12	.15	.19
6¼	.03	.07	.10	.13	.17	.20
6½	.04	.07	.11	.14	.18	.22
6¾	.04	.08	.12	.16	.20	.24
7	.04	.08	.12	.17	.21	.25
7¼	.04	.09	.13	.18	.23	.27
7½	.05	.09	.14	.19	.24	.29
7¾	.05	.10	.15	.21	.26	.31
8	.05	.11	.16	.22	.28	.33
8¼	.06	.12	.17	.23	.29	.35
8½	.06	.12	.18	.25	.31	.38
8¾	.06	.12	.20	.26	.33	.40
9	.07	.14	.21	.28	.35	.42
9¼	.07	.14	.22	.29	.37	.45
9½	.08	.15	.23	.31	.39	.47
9¾	.08	.16	.24	.33	.41	.50
10	.08	.17	.26	.34	.43	.53

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Investment Yields—Improvement Methods

FIVE SPECIFIC METHODS FOR INCREASING OR MAXIMIZING RETURNS ON short-term investments are included in this chapter. These are: (1) riding the yield curve, (2) treasury bill roll programs, (3) swapping or switching, (4) treasury refundings and rights values, and (5) anticipating interest rate trends.

Riding the Yield Curve. Market conditions occasionally make it possible to improve investment yields by trading out of one issue and into another of similar liquidity and quality. Liquidity of an investment held is essential to the trading referred to as "riding the yield curve." In regard to use of this method for increasing yields, it has been stated that "Perhaps the most important bridge for the investor to cross when considering the technique of riding the yield curve is acceptance of the fact that a marketable instrument need not be held to maturity."(1)

Two basic facts of money market investments must be understood for consideration of increasing investment returns by this method. First is the realization that investment yields normally increase as term to maturity is extended. Conversely, as a specific security approaches maturity, the rate of return decreases for the remaining time to maturity and decreasing rates of return translate into higher market values. With these two facts in mind, it is easy to understand that, under normal conditions, a 180-day investment bought to yield 6% will have less than a 6% yield to maturity when 90 days have elapsed and only 90 days to maturity remain. How the lower yield to maturity translates into a higher market value before actual maturity, and how this can be used to increase an investor's yield, is illustrated by an example using actual data, as presented in table 24.1.

Before using the data in the table as an example of riding the yield curve, the following facts should be noted. The 178-day maturity has a yield of 4.9796%, which is 35 basis points better than the yield on the 59-day maturity and 42 basis points better than that on the 31-day maturity. These data represent a normal yield/maturity relationship where yields increase as maturities lengthen. Also, by scanning the sale value column, one notes that as maturities become shorter and yields lower, the value of the security becomes greater. For this example of riding the yield

TABLE 24.1

U.S. TREASURY BILL SECONDARY MARKET DATA—OCTOBER 18, 1976

Maturity date	Days to maturity	Discount rate		Value per $1 million		
		Bid	Ask	Sale value	Purchase value	Purchase yield
11/18/76	31	4.72	4.54	$995,935.56	$996,090.56	4.5578%
12/16/76	59	4.69	4.59	992,313.61	992,477.50	4.6248%
1/20/77	94	4.82	4.74	987,414.45	987,623.33	4.7994%
2/17/77	122	4.86	4.78	983,530.00	983,801.11	4.8587%
3/17/77	150	4.89	4.81	979,625.00	979,958.33	4.9084%
4/14/77	178	4.90	4.86	975,772.22	975,970.00	4.9796%

curve, assume that short-term yields, over a period of six months, do not change. This, of course, is not realistic and one must realize that, if rates fall, riding the curve will be more advantageous. Conversely, rising rates will decrease or cancel possible yield improvement.

Assuming constant rates, a simple example of the advantage in riding the curve is as follows: If an investor purchased the 178-day maturity at $975,970 and held it for 119 days, that investment would sell at the $992,313 sales value for the remaining 59 days to its maturity. This represents a gain of $16,343 for the 119 days held. Then, if one reinvested only the original principal of $975,970 in a new 178-day maturity and held it for 56 days, this investment would sell for the value of the remaining 122 days to its maturity, or $983,530. This creates an additional gain of $7,560 for the 56 days held, and a total gain of $23,903 for the 175 days (119 days + 56 days). The nearest comparison that can be made is a normal purchase of the 178-day investment held to maturity. The gain by holding to maturity is $24,030 ($1,000,000 − $975,970 cost). The proportion of this gain applicable to 175 days is 175/178 of $24,030, or $23,625. This, of course, is $278 less than the $23,903 return realized in 175 days by riding the yield curve. In this example, a reinvestment of only the original principal at the first trading date was intentionally assumed in order to not compound yield on the original gain. The purpose is to show only the gain from riding the curve.

In the example, with unchanged interest rates, the gain of $278 is not great. As previously pointed out, the gain could be considerably more if riding the curve takes place during a period of falling money market rates. In the event of rising market rates, riding the curve would be less advantageous. In that case the investor merely holds the original investment until maturity, and takes the assured yield rate applying at the time of original purchase.

Treasury Bill Roll. This method for increasing investment yield is closely related to the previously described method of "riding the yield curve." Here, however, an ongoing program is considered, in which the investor buys each long-maturity bill (26 weeks or one year) when it is auctioned. Each investment is sold and the proceeds are used to purchase a comparable bill at the next auction. A continuous "rolling over" of the bill investment so as to constantly be holding either the 26-week or one-year bill improves investment return except in a period of rising interest rates. In such a period, the roll program is suspended and the investment is held to maturity with no loss of income.

The treasury bill roll program is, of course, based on the same principle that makes riding the yield curve productive. The roll program, however, is usually an ongoing operation with purchases made by direct bid at regular auctions or through the secondary market following regular auction dates. The advantage of purchases through the direct auction bid is that the cost of the dealer's charge in the secondary market (difference between bid and ask quotations) is avoided.

Swapping or Switching. These two terms are used interchangeably and imply taking advantage of discrepancies that occur in the supply-demand balance among securities of similar quality and maturity. Market pressures, such as a large new issue with maturity comparable to an existing issue, may cause the new issue to sell at a higher yield (lower price). Such a temporary market discrepancy presents an opportunity to the investor to sell a higher-value investment and reinvest in the similar new but lower-priced issue. Various market factors that cause rate and price disparity among similar investments are quickly corrected by knowledgeable large investors through trading. These investors take advantage of such market situations to improve their yields. Large investors in money market securities may have computer programs to indicate "trigger points" in yield relationships that constitute swap opportunities. The director of the trading room of one major bank told the author that he felt a good guideline was that a swap for comparable quality and maturity was worth the effort when rates varied by 10 basis points or more on maturities for 180 days or more. This would represent approximately a $500 yield improvement on a $1 million investment if rates are in the 5% to 6% range. As the size of investment and length of maturity decrease, the 10-basis-point yield difference becomes less advantageous. For example, on $100,000 invested for 90 days, a swap at a 10-basis-point differential produces only $25. Therefore, any rule of thumb must take into consideration both size of investment and the length of maturity. The investment manager should always be alert for potential advantages of a swap of currently held investments for other similar issues that are under temporary market pressure.

Refundings and Rights Values. The U.S. Treasury occasionally schedules refunding issues of notes or bonds to replace maturing obligations. To insure that a refunding operation will be successful, the Treasury may offer the new issue at interest rates that are above prevailing rates; this encourages the quick and complete sale of the new issue.

If the refunding operation is an advance refunding of an issue prior to its maturity, the Treasury may create a "rights" value on the refunded obligation. Such a rights value limits participation in the refunding issue to holders of those obligations being retired. To qualify for purchase of the new issue, which carries an advantageously high yield, the purchaser must surrender an equal par value of the issue being refunded.

In order to improve yield by investing in refunding issues, the portfolio manager must both watch and anticipate. By watching for announcements of Treasury refundings, the alert investor will be prepared to subscribe for those refunding issues providing rates of return higher than other comparable maturities. Even if the investment is for a 10-year maturity, the short-term investor will buy the refunding issue and subsequently sell it when a premium price is offered on the secondary or resale market.

Anticipation, with regard to refunding offerings, is involved in predicting those existing issues that are likely to be refunded under the rights limitation previously mentioned. As an outstanding issue, which ultimately carries a refunding rights value, approaches the refunding date, its worth increases as a result of the value of its refunding rights. The investor, who anticipates such an event and who buys the security before the rights value is recognized by the market, has two ways to increase yield. He may sell the issue before refunding and reap the benefit of the premium placed on its price by the market recognition of the rights value, or he may use the rights value by exchanging the existing investment for the refunding securities, which carry a rate of return higher than prevailing market rates for similar maturities.

Anticipating Interest Rate Trends. This method for increasing yield may be considered one of the most important because it affects the degree to which the preceding four methods are successful. Anticipating trends in interest rates involves an understanding of all factors affecting money market rates. It also involves a constant study of economic and financial news that may aid in forecasting such rate changes.

If the portfolio manager expects money market rates to decline, the average maturity of the portfolio should be lengthened to lock in the presently existing higher rates of return. While extending the average maturity, the manager will attempt to stay within that future date at which declining rates can reasonably be expected to start increasing again. In a period of falling rates, the portfolio manager will recognize this as an opportunity to

increase yield by riding the yield curve and/or increasing activity in a treasury bill roll program.

Also in a period of decreasing rates of return, it may be desirable to carry a larger proportion of the portfolio in more liquid securities. This increases opportunities for riding the yield curve with a larger volume of investments.

When the investment manager anticipates rising interest rates, the previously suggested actions will be reversed. Average maturity of the portfolio will be shortened so that funds may be reinvested at future higher interest rates when current holdings mature. Riding the yield curve and treasury bill roll programs may be curtailed or discontinued.

Only the elementary features of methods for maximizing yields are mentioned here; perhaps an entire chapter could be devoted to each method, and other methods could be included. However, this is not a technical book for experts, but a book designed to aid college and university investment personnel in understanding most of the fundamentals of short-term investing.

Note to Chapter 24

1. Morgan Guaranty Trust Co., *Money-Market Investments: The Risk and the Return*, seventh printing, with revisions (New York: Morgan Guaranty Trust Co., 1970), p. 59.

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Recordkeeping and Measuring Effectiveness

THE SUBJECT OF RECORDKEEPING HAS BEEN POSTPONED UNTIL THIS CHAPter because it relates to both cash management and short-term investing. Records should be kept for two general reasons, broadly categorized as (1) control and audit and (2) reporting and effectiveness measurements. Recordkeeping is discussed here under these two categories, and is summarized with suggestions for appropriate measurements for various phases of both cash and investment programs.

Subsidiary Ledger. The subsidiary investment ledger is an essential investment record. Good accounting practice requires detailed subsidiary records to support general ledger accounts for such assets as accounts receivable, notes receivable in loan programs, and plant assets such as buildings and equipment. Just as essential, for both control and audit, is a subsidiary record to support the investment account or accounts on an organization's general ledger. The investment subsidiary ledger should contain all appropriate information for every investment held by an institution. Such a record should be individually or separately maintained for each investment, and should include all information relative to purchase, sale or maturity, and income realized. For audit purposes, this ledger is an official record of an institution and should have a retention period comparable to the general ledger account that it supports.

Investment subsidiary ledger records may be maintained as either a card file or a looseleaf ledger. In either case, a separate card or ledger page should be maintained for each separate investment purchased. Information necessary for each record includes:

1. Fund for which an investment is held.
2. Type of investment, such as bank CD, treasury bill, bankers' acceptance, commercial paper, treasury note or bond, etc.
3. Source of purchase, such as a bank or security dealer (optional information).
4. Security identification number or safekeeping number.
5. Purchase date.
6. Face amount of investment.
7. Cost price of investment.

8. Interest rate or yield rate.
9. Maturity date.
10. Principal transaction record section for date and ledger value of purchase, sale, and maturity.
11. Income or yield information section for date due and date and amount of income received.

A 5 × 7 card record can easily contain all the above information and provides flexibility for ledger arrangement into open and closed categories as well as separation by type of investment and/or chronological order of purchase date or maturity date, if desired. Illustration 25.1 is an example of a typical investment subledger card.

The subsidiary ledger investment records, containing all the listed data, provide basic information for investment control, reporting, and auditing. Reporting and control may best be facilitated by an additional hand-posted portfolio summary, described later as a fourth type of record. Nevertheless, the subsidiary ledger record, being an official record, is the information source that best supports any audit review and substantiates the propriety of every investment transaction. Subledger records should be balanced against general ledger accounts on a regular monthly or quarterly schedule.

Activity Log. A second record is an activity log, which is not essential but facilitates both control and reporting activities. It is not an official accounting record but an investment officer's tool.

Although it may be possible to mechanize or computerize the activity log, it is perhaps most effectively maintained as a hand-posted worksheet. Hand posting makes this record as current as on-line input and terminal output in a computer system could provide. The essential element for this record is immediacy of transaction entry. Normal levels of investment activity are easily accommodated by clerical hand posting, and this is perhaps the quickest way to produce such a record on a current basis.

The activity log is a chronological list of every investment transaction. If hand posted, the information may be entered on columnar analysis paper with columns varying from eight to eighteen or even more, depending on the scope of the investment program, the number of cash accounts affected, and the number of funds to which the investment program applies. For simplicity, the description here is limited to a pooled operation as described in chapter 7; thus, there is no concern here with a need for keeping information on investments of a number of funds. A pooled investment fund having three separate bank accounts from which disbursements are made is shown in illustration 25.2. Using only one or two banks would further simplify this record.

ILLUSTRATION 25.1

INVESTMENT SUBLEDGER RECORD

Security description: Fund _____

Security type and numbers _____

Purchase date _____ Face value $ _____ Cost $ _____ Interest rate _____

Maturity date _____ Disposition of proceeds _____

PRINCIPAL TRANSACTIONS

Date	Bought or Sold	Debit	Credit	Balance

INTEREST RECORD

Date due	Amount	Date received

Date due	Amount	Date received

Date due	Amount	Date received

The activity log in the illustration shows the following information for every investment transaction:

1. *Date of transaction.* All transactions should be entered in the chronological order in which they occur.

2. *Transaction.* This column provides a brief description of the transaction, such as purchased CD, sold T-bill, commercial paper matured, etc.

3. *Investment debit or credit.* This section may be divided into separate columns for each type of investment for which separate portfolio totals are desired. Principal cost of the investment is entered here as a debit for purchase or credit for sale or maturity.

4. *Investment income debit or credit.* Only one column is needed if all investment transactions are pooled and purchases are from pooled resources. Most entries in this column, being income received, will be credit entries. If accrued interest is purchased with investment principal, there will be a debit entry.

5. *Cash account.* This section should have columns for each bank account that may be affected by any investment activity. Entries here are made as debits for sale or maturities and credits for investment purchase in appropriate bank columns.

Net debits and credits on each line of entry are equal at all times.

This type of activity log serves several purposes. First, this record is one of the best sources of information needed to reconcile differences that may arise in any recordkeeping situation. Second, the activity log constitutes the most current record of total investment income on a year-to-date basis, as well as total portfolio principal amount by type of investment. Third, and related to the preceding, the activity log may be the basis for portfolio totals for graphs and reports on weekly, monthly, quarterly or any other desired basis. A fourth use for the activity log is as assistance to auditors. Although the log is not a permanent record, it should be retained until a fiscal-period audit is complete because the log is the most convenient record for answering almost any audit question that may arise.

Correspondence File. A third category of records for control and audit is an investment correspondence and follow-up file. This file should be composed of copies of all instructional orders given with regard to purchase, sale, or maturity of investments; these may be copies of letters or confirmations regarding transactions. If telephone orders or instructions are given and no confirming letter is desired, a specifically designed telephone confirmation form is suggested. It is usually helpful to write out such telephone confirmation before a telephone call is placed; this helps insure that necessary instructions are not omitted when directions are given by telephone.

Perhaps the most important function of the correspondence record file

ILLUSTRATION 25.2

INVESTMENT ACTIVITY LOG

Date	Transaction	Investments Dr. (Cr.) Government securities	Bank CDs	Commercial paper
7/1	Balance forward	$6,165,523.54	$1,838,003.75	$325,000.00
7/1	Purchase CD at Central State Bank		175,000.00	
7/5	Purchase CD at Bank #3		225,000.00	
7/7	CD matures at 1st National Bank		(132,000.00)	
7/7	Purchase T-bills	133,716.27		
7/12	Commercial paper matured			(225,000.00)
7/12	CD matured at Old Town National		(200,000.00)	
7/14	T-bills on repurchase mature	(858,000.00)		
7/14	Purchase savings deposit receipt			
7/16	Purchase savings deposit receipt			
7/19	CD matures at XYZ National		(256,003.75)	
7/20	CD matures at XYZ National		(180,000.00)	
7/20	Purchase bankers' acceptance			
7/20	Commercial paper matured			(100,000.00)
7/22	T-bills mature	(1,000,985.75)		
7/22	Repo purchased, based on T-notes	1,130,000.00		

relates to a follow-up system to insure that all subsequent phases of each investment transaction are completed. Some steps in the completion of a transaction may not take place until a week or more after its execution and after many subsequent transactions and events. If a detailed follow-up is not maintained, essential actions may be overlooked.

File copies of letters and telephone confirmation records can have follow-up details shown at the bottom. If such copies are retained in an open file until all necessary actions are checked off, no requirements will be overlooked.

Follow-up items after investment execution vary as transactions vary. Some of the most common follow-up items may be listed as:

On an investment placed—the receiving of a security or safekeeping receipt, receiving of a debit slip against a bank account to pay for the investment if it is not covered by issuance of a check, journal entry to record bank debits, an invoice to substantiate purchase details, etc.

On an investment sold or matured—bank credit for proceeds of transaction, new safekeeping receipt if only a portion of an investment is sold, an invoice to substantiate the investment sale, etc.

Other documents that may be kept in the correspondence file are copies of journal entries and check requests relating to investment action. Such copies are not necessary, but are merely a convenience for later verification, when originals may be in other departments.

The three main purposes of the correspondence file may be summarized as follows, in order of importance: (1) as a follow-up to insure that all

—POOLED INVESTMENTS PLAN

Investments Dr. (Cr.)		Dr. (Cr.)	Cash Dr. (Cr.)		
Bankers' acceptances	Miscellaneous other	Investment income	Bank #1	Bank #2	Bank #3
			($8,328,527.29)		
					($175,000.00)
					(225,000.00)
		($2,521.75)	134,521.75		
			(133,716.27)		
		(673.89)		$225,673.89	
		(1,137.50)			201,137.50
		(2,752.75)			860,752.75
	$45,000.00		(45,000.00)		
	53,000.00		(53,000.00)		
		(3,316.49)	259,320.24		
		(2,357.50)	182,357.50		
$252,640.00			(252,640.00)		
		(419.81)		100,419.81	
		(9,014.25)			1,010,000.00
					(1,130,000.00)

necessary actions take place, (2) as assistance for audit verification and tracing, and (3) for subsequent reconciling of any differences that may arise among other types of records.

Portfolio Summary. A fourth record for control and audit is the portfolio summary. This record may appear difficult to justify because it duplicates information of the subsidiary ledger and the activity summary. Information here is in a different form, and the little additional time required to maintain this summary is more than justified by the convenience of the quickly usable information it provides.

Here, as with the activity summary, the record is not official. It is a working tool of the investment manager, and its value may not be appreciated until one has tried to operate an investment program without it. Before the portfolio summary is described, the main advantages of this record for control, reporting, and operational purposes will be discussed. Here, in one place, the investment manager can find at a glance all open investments by type, approaching maturities, open investments of each issuer (especially important if there are limitations in amount of any single issuer), date sold or matured on all closed investments, etc.

The portfolio summary may be merely a series of hand-posted worksheets—a separate sheet or series of sheets for each type of investment. When posting this record, an investment officer will realize that it duplicates information recorded in other places. However, the usefulness of this duplication is in its arrangement of the information to facilitate daily operation and control.

Analysis sheets containing six columns accommodate all the information needed on the portfolio summary. An example of such a summary sheet for treasury bills is shown in illustration 25.3. Separate but similar sheets would be used for bank CDs, treasury bonds and notes, commercial paper, bankers' acceptances, etc. Columnar information may be the same for all types of investments and, as shown in the illustration, may be arranged as follows:

1. Security or safekeeping reference number.
2. Date of investment.
3. Principal amount invested.
4. Maturity date.
5. Maturity value.
6. Yield rate.

Each investment made, sold, or matured should be entered in the portfolio summary as soon as the transaction is completed. This entry may be made at the same time that the activity summary is posted. As previously stated, all data entered on the portfolio summary worksheets are the same as in the investment subsidiary ledger records. However, here all the information is in continuous form so that maturities, sources, types of investment, yields, etc. can be observed at a glance.

When an investment is sold or matures, it may be lightly ruled out and the date noted on the portfolio summary. It may also be advisable to make a reversing entry ( ) in the money columns, especially when only a portion of an individual investment is liquidated before maturity. To allow room for such reversing entries, original entries should be entered

ILLUSTRATION 25.3

PORTFOLIO SUMMARY—TREASURY BILLS

	Reference number	Purchase date	Investment principal	Maturity date	Maturity value	Yield rate
T-bills	SK 5870	8/5/76	256,681.03	11/04/76	260,000.00	5.12%
Sale 10/8			(98,723.47)		(100,000.00)	5.09%
T-bills	SK 5896	8/17/76	442,339.38	12/14/76	450,000.00	5.24%
T-bills	SK26292	8/26/76	318,876.46	1/06/77	325,000.00	5.38%
T-bills	SK26384	9/03/76	157,194.44	1/06/77	160,000.00	5.14%
Sale 10/6			(157,194.44)		(160,000.00)	5.00%
T-bills	SK26397	9/09/76	390,218.67	2/24/77	400,000.00	5.37%

on every third line. It should be remembered that this is merely a hand-posted worksheet to assist the investment officer in control or operational decisions such as maturity awareness.

When an aid of this nature is used, it will be recognized as a convenience to the investment manager rather than as a required record. If open items are carried forward to a new summary at year-end, there is little reason to retain a prior year's worksheet after it has served its purpose.

Four types of records or analytical computations for reporting and measuring program effectiveness next deserve consideration.

Average Portfolio Maturity. The investment officer should know, even if he does not report, the overall average maturity days of the portfolio. Such information is probably more for control than as a tool for reporting or a gauge of effectiveness. On the expectation of rising market rates, overall average maturity should be shortened, and conversely, anticipation of falling interest rates warrants a temporary lengthening of portfolio maturity. It would seem difficult to change maturity if the investment officer did not know the current average maturity of the portfolio. Therefore, a monthly or, at least, quarterly determination of average maturity is advisable for operational reasons as well as for periodic reporting purposes.

A simple calculation, on a worksheet similar to that shown in illustration 25.4, easily produces a portfolio's average maturity. It is desirable to group investments by type and to subtotal each type so that average maturity days may be calculated for each category as well as for the total portfolio. This can be done without any extra effort.

Information for the work paper is easily excerpted from either the portfolio summary, described in the preceding section of this chapter, or the subsidiary ledger records. The illustration is practically self-explanatory; each investment has the principal cost entered in the column so designated, and at the same time, maturity date is inserted as an information item. From this information the remaining days to maturity for each investment are determined and inserted in column 2. Multiplication of column 1 by column 2 produces column 3 as investment dollar days. Average maturity is simply calculated by dividing subtotal or total investment dollar days by subtotal or total principal, that is, column 3 by column 1. Large portfolios may warrant computerization of this calculation, although the computations are simple and clerical time involved in quarterly computation is minimal.

Average Available Funds. One measure of investment effectiveness compares average investment to average available funds. As previously mentioned, a reasonable goal, where bank accounts are incrementally funded, would have the average invested amount equaling 100% or more of

ILLUSTRATION 25.4

AVERAGE MATURITY OF INVESTMENT PORTFOLIO

	Maturity date	(1) Principal cost (000)	×	(2) Remaining days to maturity	=	(3) Investment dollar days (000)
Treasury Bills						
Treasury bill	7/14/76	$ 858		14		12,012
"	7/22/76	1,001		22		22,022
"	7/27/76	358		27		9,666
"	8/24/76	372		55		20,460
"	8/26/76	393		57		22,401
"	9/09/76	195		71		13,845
"	9/23/76	394		85		33,490
"	9/30/76	798		92		73,416
"	10/21/76	487		113		55,031
Total Bills		4,856				262,343
Treasury Notes and Bonds						
Treasury note	2/15/83	400		2,421		968,400
"	5/31/77	403		335		135,005
"	4/30/77	506		304		153,824
Total Notes		1,309				1,257,229
Bank Certificates						
1st National Bank	7/07/76	132		7		924
Old Town National	7/12/76	200		12		2,400
XYZ National	7/19/76	256		19		4,864
"	7/20/76	180		20		3,600
"	8/09/76	365		40		14,600
"	9/07/76	385		69		26,565
Central State	10/04/76	200		96		19,200
Commercial Bank	11/29/76	120		152		18,240
Total Certificates		1,838				90,393
Commercial Paper						
Prime One Credit Corp	7/12/76	225		12		2,700
"	7/20/76	100		20		2,000
Total Commercial Paper		325				4,700
Total Portfolio		$8,328				1,614,665
		(A)				(B)

$$\text{Average maturity} = \frac{B}{A} = \frac{1{,}614{,}665}{8{,}328} = 193.9 \text{ days}$$

Average maturity of each category of securities is computed similarly using the subtotals in respective columns.

available funds. (A later section of this chapter considers the calculation of average daily amount invested.)

The amount of average daily available funds is a necessary factor to be determined if effectiveness is to be accurately measured. Average available funds should represent "collected" funds, after elimination of required compensating bank balances. Daily available funds are not book balances but a balance per books adjusted in a number of ways, as enumerated below. Starting with the beginning of a fiscal period, an available balance is determined for the first day and for each subsequent day. The total of all daily balances in a fiscal period is then divided by the number of days in the period. Because of the number of adjustments to be considered in determining daily balances of available funds, it is questionable whether many organizations determine true average daily balances. However, a clerk can compute true balances if the adjustments and the reasons behind them are understood.

The step-by-step procedure can be outlined as follows:

1. Start by adding beginning investment ledger balances to cash account balances.
2. Adjust the above result by adding back any disbursements booked but not yet released. Also eliminate cash deposits booked, but which do not yet represent "collected" funds in the bank. Deduct amounts of compensating bank balances, as they are not available funds for investment.
3. The above adjustments produce a beginning available bank balance at the start of day #1. To this balance add "collected" funds for day #1 minus the principal amount of investments sold or matured and any "collected" funds representing bank transfers.
4. Next, released disbursements for day #1 are subtracted after eliminating investment purchases and bank transfer funds included in daily disbursement totals.
5. The result of the preceding steps is the amount of available funds for the first day of the fiscal period. The adjustments in #3 and #4, as applicable to each subsequent day, produce available balances for those days.

If clearly outlined on a worksheet, the above calculations can be performed by a clerk. They can be used by the investment manager in measuring his effectiveness in keeping all available funds invested. Daily balances are most appropriately averaged for a period of a month, quarter, or year.

Average Investment and Average Yield. These two statistical data items are considered together because calculation of average yield uses information resulting from the average investment computation. Both are useful for effectiveness measurement and investment reporting.

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Daily average investment is not a difficult computation. In fact, it is less complicated than arriving at a true average of daily available funds, previously outlined. An average of month-end investment ledger balances is simple, but far from satisfactory. More usable, but of limited value, would be an average of weekly investment balances easily derived from the investment activity log in illustration 25.2. The only truly satisfactory average investment for comparison with average daily available funds is the average daily figure computed from the analysis in illustration 25.5.

The computations here produce two significant figures used in preparing annual or monthly investment portfolio reports. In the illustration, totals were used for each category of investment rather than individual securities. In practice, the principal cost of each security (column 1) is multiplied by the number of days each security was held during the period under review (column 2) to arrive at investment dollar days (column 3). Average investment is then simply determined by dividing the total of investment dollar days in column 3 (A in the formula) by the calendar days in the period being analyzed.

Average yield for the period is determined by multiplying each entry in column 3 by its annualized 360-day CD yield equivalent (see chapter 24) to produce a factor of yield-weighted investment dollar days (column 5). The total of column 5 (B in the formula) is then simply divided by investment dollar days total in column 3 (A in the formula) to produce the average yield for the total portfolio during the specific period.

An alternate to the illustrated worksheet calculation for average yield is possible when total income for the fiscal period includes adjustments for accrued investment income at beginning and end of the period. In this situation, divide the total income by the average daily investment calculated from column 3 of the worksheet, thus avoiding the need for individual entries in columns 4 and 5. Either method for computing average yield produces satisfactory results as long as total income includes the accrual factors.

Average Float. This factor is primarily useful in measuring effectiveness of cash management rather than efficiency of the investment program. By determining average daily bank account float, it is possible to make some comparisons to indicate the effectiveness of incremental funding of bank accounts and the degree to which disbursement float is kept invested.

If the cash manager operates on a basis of using only "collected" funds in the bank, then average daily float should be calculated on a "collected" funds basis. This requires an adjustment of both book figures and bank balances from a "credited" funds basis to a "collected" funds status. This merely means elimination of the uncollected deposits each day from both book and bank account balances and adding back at the date they become

ILLUSTRATION 25.5

COMPUTATION OF AVERAGE DAILY INVESTMENT AND AVERAGE YIELD FOR PERIOD (365 DAYS)

Individual Securities*	(1) Principal cost (nearer thousand)	×	(2) Days held in this period	=	(3) Investment dollar days (nearer thousand)	×	(4) Annualized 360-day CD equivalent	=	(5) Yield-weighted investment dollar days
Treasury bills	$13,954		78		1,088,412		6.11%		66,502
Treasury notes	1,308		111		145,188		7.41		10,758
Bank certificates	14,146		104		1,471,184		6.65		91,834
Bankers' acceptances	366		176		64,416		7.70		4,960
Repurchase agreement	1,304		6		7,824		5.17		405
Commercial paper	1,779		53		94,287		6.66		6,280
FHA securities	1,040		258		268,320		7.50		20,124
SDR	1,964		30		58,920		5.00		2,946
	$35,861				3,198,551				209,809
					(A)				(B)

$$\text{Average investment} = \frac{\text{Investment dollar days (A)}}{\text{Days in period (365)}} = \frac{3,198,551,000}{365} = \$8,763,153$$

$$\text{Average yield} = \frac{\text{Yield-weighted investment dollar days (B)}}{\text{Investment dollar days (A)}} = \frac{209,809,000}{3,198,551,000} = 6.56\%$$

*For illustrative purposes, data shown represent totals taken from listings of individual securities.

"collected" one or two days later. If book amounts reflect any disbursements not yet actually released, an adjustment must also be made for such amounts. After these adjustments, a simple comparison on a day-to-day basis between book and bank figures determines the difference, or daily float. The monthly total of such daily float figures divided by the number of days in the month produces a usable daily average for measurement of effectiveness.

If average daily investment, determined in illustration 25.5, has average available funds subtracted from it, the difference, if a positive balance, represents average daily float invested. This should then be related to total average daily float to determine what proportion of float has been kept invested. To summarize:

Average daily investment—Average daily available funds =
Average daily float invested

and

Float invested/Average float × 100 = Percentage of float invested

In the author's experience, a goal of 50% of average daily float invested is reasonable; 75% is attainable with careful management and incremental funding of banks to keep average daily float at a low figure. Cash management by objectives represents setting a goal as above, reaching that goal, then resetting the goal at a higher but reasonably attainable level.

Having covered two reasons for keeping records, namely, for control and audit and for measuring effectiveness, it is appropriate to conclude with a brief summarization of some measures of effectiveness. Most of these have been referred to previously in this chapter or in earlier chapters. This, then, is intended to represent a review of effectiveness measurements most appropriate to colleges and universities.

1. *Percentage of disbursement float invested.* If bank accounts are incrementally funded, the reasonable goal should be adjusted to at least 66% or more of average daily float invested.

2. *Percentage of available funds invested.* With incremental funding, keeping 100% or more of available funds invested is reasonably attainable. This is especially true if compensating balances are excluded from calculations of average daily available funds, as previously described.

3. *Percentage return on average investment.* Calculation of the average yield on a portfolio was covered by illustration 25.5. It should be the goal of investment officers to do as well as or better than an average yield on a money market composite index or the return earned by professionally managed money market mutual funds.

4. *Income as a percentage of revenue.* In short-term investment of a college or university's working capital, the relationship of total current fund investment income to total current fund revenue is a meaningful statistic when compared with the same data for like institutions. (An example of this relationship was presented in chapter 1.) The relationship is affected by method of financing. An independent institution receives a larger proportion of its revenues at the beginning of each term, whereas public institutions are more likely to receive large parts of total revenues in monthly increments. Receiving revenue in advance or at the beginning of a term has investment advantages, and for this reason comparison by this measure of effectiveness should be limited to similarly funded institutions.

5. *Average investment as a percentage of revenue.* Here the average short-term investment total as developed in illustration 25.5 may be compared with total current fund revenue. Although average total investment includes some amounts resulting from other than current funds, most short-term investments arise from current fund revenues. Experience indicates that 25% of total current fund revenue is not an unrealistic goal for the total average portfolio. Here again, an independent institution may be able to invest more than 25%.

In concluding, it should be pointed out that total investment income does not measure effectiveness. Rather, one must ask. "How well did we do with the funds available and under the market conditions that existed during the fiscal year?" The previously enumerated measures should help answer this question.

26

Sources of Information—Economic and Money Market Data

THE INVESTMENT MANAGER MUST MAKE MANY DECISIONS BASED ON A knowledge of existing market conditions and on an informed forecast of anticipated developments. There are more publications containing basic information than most managers can possibly find time to read. The problem, therefore, becomes one of judging which publications supply the most usable and reliable information; each investment officer must decide which sources best meet his needs. Some representative sources of the type of information available to money and investment managers are listed below.

The Wall Street Journal is undoubtedly one of the most essential references. Because this is a daily publication, it is one of the most current sources of information on money market rates, U.S. government and agency securities, and general economic and banking news.

"Aubrey Lanston Letter" is a weekly four-page publication providing a current analysis of government security market operations, with three pages of statistical market data for government and agency securities. Aubrey Lanston is a leading government security dealer with offices in New York, Boston, and Chicago.

Major bank weekly newsletters also cover money market, fixed-income security, and general financial news. Most also include two or three pages of weekly statistical and rate data in comparative format. Representative of such publications are:

1. Bank of America's "Weekly Monetary Summary."
2. Manufacturers Hanover Trust's "Financial Digest."
3. Morgan Guaranty Trust Government Bond Department's "Weekly Money-Market Bulletin."
4. Continental Illinois National Bank's "Continental Comment" by Economic Research Division and "Interest Rate Comparisons" by the Bond Department.

Other major regional banks as well as money-center banks (in addition to those listed above) have similar publications, and the investment officer should consider using a number of these on a regular basis in order to be aware of the plans of major finance organizations. Although most publica-

tions agree in general interpretation of financial conditions and trends, there are some variations.

Monthly and bimonthly business and economic reports by major banks are also worthy of consideration. Representative of such publications are these from some of the New York banks:

1. Citibank's "Monthly Economic Letter."
2. Chase Manhattan Bank's bimonthly "Business in Brief."
3. Manufacturers Hanover Trust's monthly "Economic Report," which features an essay by Tilford Gaines, senior vice-president and economist.

Major security dealers and brokers have weekly and monthly publications. Those related to both government securities and other fixed-income investments should be helpful sources of information. Three such publications representative of this category are:

1. "Guide to Fixed Income Markets," a monthly ten- or twelve-page brochure by the Municipal and Corporate Bond Division of Merrill Lynch, Pierce, Fenner & Smith, Inc.
2. "Bond Market Comment," a weekly publication by the above organization.
3. "Weekly Government Securities Bulletin" by Merrill Lynch Government Securities, Inc.

Publications by various Federal Reserve Banks are another excellent source of information. Some that are available from the Federal Reserve Bank of St. Louis are mentioned below as representative:

1. "Review," a quarterly booklet of approximately 20 pages containing two or three articles by individual authors on business, financial, and economic subjects.
2. "National Economic Trends," a one-page monthly letter with up to 20 pages of economic data and charts.
3. "Monetary Trends," a one-page monthly letter with up to 12 pages of monetary data and charts. This publication covers monetary data in the method that "National Economic Trends" covers general economic affairs.
4. "U.S. Financial Data," a one-page weekly letter with up to 12 pages of monetary data and charts. This publication presents, on a weekly basis, information similar to that presented in the monthly "Monetary Trends" letter.

All of the previously mentioned publications, with the exception of *The Wall Street Journal*, are presently available without charge and these are merely representative of the type of information that may be useful. Many more, from other major banks, security dealers, and federal departments, are available. It is impractical to read all or even a large proportion of the

free information. However, it is wise to read a number of publications from a variety of different sources in order to base decisions on the thinking of many authors in fields related to short-term money markets and the economic conditions on which those markets depend.

In addition to the variety of free information available, there are a number of commercial publications and advisory letters that may be considered, such as the "Kiplinger Washington Letter," "United Business Service," and many more. Representative of magazines are the business publications such as *Business Week, Forbes, Fortune, Board Report,* and *Barron's.* Such publications are read by the investment manager primarily for general economic and business news, but also for investment and financial information contained in appropriate sections of these publications.

Investment officers at other institutions, as well as bankers, security dealers, and brokers, read much of the same type of information. Therefore, the institutional investment officer should take time to talk with, and listen to, these persons in order to benefit by their interpretations of financial situations and developments.

Appendix A: Tabulation of Questionnaire Replies

A QUESTIONNAIRE WAS DESIGNED AND MAILED TO SELECTED FOUR-year colleges and universities in every state. For the mailing, a balance was carefully maintained between independent and public institutions with enrollments of at least 1,000 students. The tabulation of replies indicates the distribution among institutions in four size categories as well as the distribution between public and independent classifications.

The questionnaire was designed to elicit the degree of expertise and the methods used in management of working capital and in short-term investing by colleges and universities in 1976. A donated computer program for tabulating the questionnaire replies gave analyses and relationships far beyond the space available for reproduction here. The following pages contain a condensation of all questions, with broad ranges of answers to each question.

The tabulation is self-explanatory. Questions relating primarily to cash management are shown first, while investment questions are listed next. Usable replies from 206 four-year institutions are included.

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Reply Distribution Summary	By Enrollment Size: Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Totals: Number	Percentage	By Type of Institution: Public	Independent
Total replies tabulated	59	70	39	38	206	100.00%		
Percentage distribution	28.64%	33.98%	18.93%	18.45%	100.00%	—		
Distribution by type of institution								
Public	3	33	29	33	98	47.57%		
Percentage	3.06%	33.67%	29.60%	33.67%	100.00%	—		
Independent	56	37	10	5	108	52.43%		
Percentage	51.85%	34.26%	9.26%	4.63%	100.00%	—		
Individual Questions								
Cash Management								
How many commercial bank *disbursement* accounts are used?								
One	13	18	12	7	50	24.27%	22	28
Two and three	26	22	14	13	75	36.41%	35	40
Four and five	12	9	2	6	29	14.08%	13	16
Six or more	8	21	10	12	51	24.76%	27	24
No response	—	—	1	—	1	.48%	1	—
How many commercial bank *depository* accounts are used?								
One	18	23	9	8	58	28.16%	32	26
Two and three	15	16	8	6	45	21.84%	15	30

Four and five	9	14	4	11	38	18.45%	16	22
Six or more	16	13	17	13	59	28.64%	32	27
No response	1	4	1	—	6	2.91%	3	3
How do you *compensate banks* for account services?								
Compensating balances	32	42	31	29	134	65.05%	64	70
Fee basis	6	4	2	2	14	6.80%	2	12
Neither	18	23	6	7	54	26.21%	31	23
No response	3	1	—	—	4	1.94%	1	3
Compensating balances are:								
Average daily balances	27	30	24	25	106	51.46%	49	57
Fixed minimum balances	4	9	5	4	22	10.68%	11	11
No response	10	8	4	2	24	11.65%	7	17
Not applicable	18	23	6	7	54	26.21%	31	23
Disbursements are released against:								
"Collected" funds in bank	24	30	14	16	84	40.78%	50	34
Credited funds in bank	3	1	1	3	8	3.88%	5	3
Incremental funding of bank account	31	39	23	18	111	53.88%	41	70
No response	1	—	1	1	3	1.46%	2	1
When *incremental funding* is used, how is disbursement float determined?								
Individual check control	11	12	8	6	37	17.96%	15	22
Batch percentage analysis	18	21	12	8	59	28.64%	22	37
Combination of above	3	5	2	4	14	6.80%	4	10
Zero balance method	—	1	1	—	2	.97%	1	1
No response	—	—	1	1	2	.97%	1	1
Not applicable	27	31	15	19	92	44.66%	55	37

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Individual Questions (Cont.)	By Enrollment Size				Totals		By Type of Institution	
	Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Number	Percentage	Public	Independent
When funds are transferred to pay for investment purchases at *other* than banks where funds are on deposit, what *method of transfer* is used?								
Federal funds wire	8	9	8	9	34	16.51%	16	18
Regular bank wire	12	19	6	8	45	21.84%	20	25
Mailed check	21	15	6	4	46	22.33%	17	29
Other	3	9	8	2	22	10.68%	13	9
Combinations of above	11	10	7	11	39	18.93%	20	19
No response	4	8	4	4	20	9.71%	12	8
Number of *payroll accounts* used:								
One and two	48	59	33	30	170	82.52%	81	89
Three and four	4	5	2	4	15	7.28%	6	9
Five or more	—	1	—	—	1	.49%	—	1
Combined with regular disbursement accounts	6	5	2	—	13	6.31%	5	8
Payment by state	—	—	2	4	6	2.91%	6	—
No response	1	—	—	—	1	.49%	—	1
Is *payroll account incrementally funded?*								
Yes	40	43	27	23	133	64.56%	58	75
No	13	23	8	11	55	26.70%	29	26

No response	6	4	2	—	12	5.83%	5	7
Not applicable	—	—	2	4	6	2.91%	6	—
Are the *same personnel* responsible for both cash management and short-term investments?								
Yes	46	50	23	24	143	69.42%	65	78
No	11	19	14	13	57	27.67%	29	28
No response	2	1	2	1	6	2.91%	4	2
Number of personnel, on FTE basis, responsible for cash management and short-term investments:								
.50 FTE or less	22	36	18	9	85	41.26%	39	46
.51—1 FTE	26	21	13	13	73	35.44%	33	40
1.1—2 FTE	8	10	5	8	31	15.05%	13	18
2.1—3 FTE	1	2	1	4	8	3.88%	6	2
Over 3 FTE	1	1	—	3	5	2.43%	4	1
No response	1	—	2	1	4	1.94%	3	1
Cash management and short-term investment is the *primary function* (over 50% of time) of how many staff personnel?								
Zero persons	43	48	21	13	125	60.68%	55	70
One person	12	18	12	14	56	27.18%	27	29
Two persons	2	4	4	8	18	8.74%	11	7
Three persons	1	—	—	—	1	.49%	—	1
Four persons	—	—	1	—	1	.49%	1	—
Five or more	—	—	—	2	2	.97%	2	—
No response	1	—	1	1	3	1.45%	2	1

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Individual Questions (Cont.)	By Enrollment Size				Totals		By Type of Institution	
	Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Number	Percentage	Public	Independent
Does your system provide *daily data* on "collected" funds in the bank?								
Yes	25	34	26	23	108	52.43%	53	55
No	33	36	12	15	96	46.60%	44	52
No response	1	—	1	—	2	.97%	1	1
Are *large checks* that are received given *special handling?*								
Yes	42	50	27	31	150	72.82%	62	88
No	16	20	11	7	54	26.21%	35	19
No response	1	—	1	—	2	.97%	1	1
What *size of checks* received are given special handling?								
$9,999 or less	10	3	2	2	17	8.25%	4	13
$10,000–$24,999	10	11	5	1	27	13.11%	7	20
$25,000–$49,999	6	8	5	3	22	10.68%	7	15
$50,000–$99,999	9	12	6	6	33	16.02%	14	19
$100,000–$249,999	6	12	7	11	36	17.48%	19	17
$250,000–$499,999	—	2	—	—	2	.97%	1	1
$500,000–$999,999	—	—	2	3	5	2.43%	4	1
$1,000,000 and over	—	—	—	4	4	1.94%	4	—

No response	2	2	1	1	6	2.91%	3	3
Not applicable	16	20	11	7	54	26.21%	35	19
Do you use a lockbox for cash receipts?								
Yes	2	8	2	7	19	9.22%	8	11
No	56	62	36	31	185	89.81%	89	96
No response	1	—	1	—	2	.97%	1	1
What *type of receipts* are routed through a lockbox?								
All	1	2	2	1	6	2.91%	2	4
Tuition	1	2	—	1	4	1.94%	1	3
Loans	—	2	—	1	3	1.46%	1	2
Housing and loans	—	—	—	1	1	.48%	1	—
Tuition, housing, and loans	—	1	—	2	3	1.46%	2	1
Other	—	1	—	1	2	.97%	1	1
Not applicable	57	62	37	31	187	90.78%	90	97
Are cash receipts and disbursements regularly forecast to establish a *cash flow?*								
Yes	48	57	31	35	171	83.01%	78	93
No	10	13	8	3	34	16.50%	20	14
No response	1	—	—	—	1	.49%	—	1
On what *time frame* basis are cash flow projections made?								
Daily	4	10	11	19	44	21.36%	24	20
Weekly	12	16	7	3	38	18.45%	17	21
Monthly	30	24	12	9	75	36.41%	30	45
Quarterly	2	7	1	3	13	6.31%	6	7
No response	1	—	—	1	2	.97%	1	1
Not applicable	10	13	8	3	34	16.50%	20	14

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Individual Questions (Cont.)	By Enrollment Size				Totals		By Type of Institution	
	Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Number	Percentage	Public	Independent
How far into the future is cash flow projected?								
Six months or longer	30	26	20	22	98	47.57%	40	58
Three to five months	10	15	4	6	35	16.99%	15	20
Two months	3	2	—	—	5	2.43%	2	3
One month or less	5	11	7	7	30	14.56%	20	10
No response	—	3	—	—	3	.97%	1	2
Not applicable	11	13	8	3	35	17.48%	20	15
Short-Term Investments								
Are short-term investments *pooled* or separately invested?								
Pooled	24	33	21	22	100	48.54%	52	48
Separately invested	35	37	18	16	106	51.46%	46	60
Which funds are *pooled?*								
All	11	22	16	19	68	33.01%	39	29
Current funds	11	5	2	1	19	9.22%	5	14
Some current funds	1	6	3	2	12	5.83%	8	4
No response	1	—	—	—	1	.48%	—	1
Not applicable	35	37	18	16	106	51.46%	46	60

Is *pooled investment income allocated* to individual funds?								
Yes	13	21	16	13	63	30.58%	33	30
No	9	12	5	9	35	16.99	19	16
No response	2	—	—	—	2	.97%	—	2
Not applicable	35	37	18	16	106	51.46%	46	60
Are securities held in *safekeeping*, or is delivery of all securities required?								
Safekeeping	50	59	34	33	176	85.44%	82	94
Delivery	8	9	4	4	25	12.13%	13	12
No response	1	2	1	1	5	2.43%	3	2
Which of the following securities do you use for short-term investments?								
Savings accounts/certificates								
Yes	37	44	19	14	114	55.34%	50	64
No	22	26	20	24	92	44.66%	48	44
Certificates of deposit								
Yes	57	66	38	37	198	96.12%	93	105
No	2	4	1	1	8	3.88%	5	3
Bankers' acceptances								
Yes	8	12	9	9	38	18.45%	10	28
No	51	58	30	29	168	81.55%	88	80
Commercial paper								
Yes	38	36	17	13	104	50.48%	22	82
No	21	34	22	25	102	49.52%	76	26
Treasury bills								
Yes	38	50	32	31	151	73.30%	78	73
No	21	20	7	7	55	26.70%	20	35

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Individual Questions (Cont.)	By Enrollment Size				Totals		By Type of Institution	
	Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Number	Percentage	Public	Independent
Treasury notes and bonds								
Yes	17	31	25	23	96	46.61%	55	41
No	42	39	14	15	110	53.39%	43	67
U.S. Agencies								
Yes	13	16	15	18	62	30.10%	33	29
No	46	54	24	20	144	69.90%	65	79
Repurchase agreements								
Yes	24	31	21	28	104	50.49%	51	53
No	35	39	18	10	102	49.51%	47	55
Money market funds								
Yes	13	7	3	2	25	12.14%	2	23
No	46	63	36	36	181	87.86%	96	85
Other (master notes, short-term corporate bonds, etc.)								
Yes	2	5	3	1	11	5.34%	2	9
No	57	65	36	37	195	94.66%	96	99
How many *bank sources* are used for direct issue certificates of deposit?								
30 or more	—	1	1	1	3	1.46%	2	1
20–29	—	—	—	3	3	1.46%	3	—

10–19	1	10	4	8	23	11.16%	17	6
5–9	13	24	14	13	64	31.07%	34	30
Less than 5	44	32	18	9	103	50.00%	35	68
No response	1	3	2	4	10	4.85%	7	3
Do you invest in *out-of-state* banks?								
Yes	17	17	7	7	48	23.30%	9	39
No	42	52	31	31	156	75.73%	88	68
No response	—	1	1	—	2	.97%	1	1
Do you *calculate investment effectiveness* on the following bases?								
Investments as percentage of available funds								
Yes	11	13	14	18	56	27.18%	36	20
No	48	57	25	20	150	72.82%	62	88
Average rate of return on invested funds								
Yes	30	32	24	32	118	57.28%	58	60
No	29	38	15	6	88	42.72%	40	48
Current funds investment income as percentage of current funds revenue								
Yes	11	8	6	6	31	15.05%	14	17
No	48	62	33	32	175	84.95%	84	91
(Current funds investment income computed as percentage of current funds revenues on basis of questionnaire information provided)								
2.5% and over	12	6	3	2	23	11.16%	5	18
2.0–2.49%	2	5	3	1	11	5.34%	6	5
1.5–1.99%	6	8	6	9	29	14.08%	17	12
1.0–1.49%	9	13	5	8	35	16.99%	14	21
.5–.99%	13	15	12	7	47	22.82%	22	25

Cash Management and Short-Term Investment Questionnaire
Reply Tabulation—206 Usable Returns

Individual Questions (Cont.)	By Enrollment Size				Totals		By Type of Institution	
	Under 3,000	3,000–9,999	10,000–19,999	20,000 and over	Number	Percentage	Public	Independent
Less than .5%	13	17	8	8	46	22.33%	28	18
No response	4	6	2	3	15	7.28%	6	9
Investment return compared to other institutions on one or more of the above bases								
Yes	6	5	7	8	26	12.62%	14	12
No	53	65	32	30	180	87.38%	84	96
Other comparisons								
Yes	3	4	1	—	8	3.88%	1	7
No	56	66	38	38	198	96.12%	97	101
Are investment decisions affected by *local politics?*								
Yes	17	22	9	12	60	29.13%	31	29
No	41	46	29	26	142	68.93%	65	77
No response	1	2	1	—	4	1.94%	2	2
Do you have a board-approved *investment policy?*								
Yes	35	44	28	30	137	66.51%	71	66
No	24	24	10	7	65	31.55%	24	41
No response	—	2	1	1	4	1.94%	3	1

Appendix B: Short-Term Investment Vocabulary

Accrued interest: The proportion of interest for a specified interest period that applies to a part of that period. *Example:* Interest of $3,000 payable for period from April 15 to October 15 (183 days) accrued at June 30 is 76/183 of $3,000, or $1,245.90.

Agencies: Refers to the debt instruments that finance activities of organizations sponsored by the federal government. (See chapter 17.)

Arbitrage: Taking advantage of price differences in separate markets or securities by purchasing in one for immediate sale in another at a better price.

Auction: The normal method through which the U.S. Treasury sells its securities to institutional and public investors; differentiated from the *subscription* method by which treasury notes and bonds may be sold on occasion. (See chapter 17.)

Bank wire: Telephone and/or telegraphic method of transmitting orders between banks, usually for the purpose of authorizing book entries to transfer funds between accounts of the respective banks.

Bankers' acceptance: A bill of exchange or a time draft covering the shipment or storage of goods and marked "accepted" as a primary liability of the accepting bank; a negotiable money market short-term investment. (See chapter 18.)

Basis point: One one-hundredth of one percent; used in referring to differences or variations in yields or discount price quotations.

Basis price: Investment price expressed as yield to maturity or annual rate of return rather than money cost price.

Bearer form: A negotiable instrument, having no named or registered owner, payable to the bearer.

Bid and *ask.* Terms used for quoting the prices at which investments (1) will be purchased and (2) are offered for sale, respectively; such price quotations may be in dollars or discount percentages.

Bond equivalent: Yield on an investment converted to a comparable 365-day equivalent.

Broker: A middleman who brings buyers and sellers together, generally charging a commission for his services; a broker does not own or take a position in securities as a principal or dealer (*q.v.*) does.

Cash sale: An investment transaction calling for delivery and payment for securities on the same day that the transaction takes place.

CD or *C of D:* A certificate of deposit, either negotiable or nonnegotiable, issued by a commercial bank or savings institution and certifying that a stated sum is on deposit for a stated period of time and will be repaid with a specified rate of interest added at maturity. (See chapter 15.)

Clearing-house funds: Monies within the banking system that are transferable from bank to bank through the Federal Reserve System, but not on a same-day basis, which applies to federal funds; clearing-house funds usually require one or two days for settlement.

Collected funds: Bank funds derived from a foreign check (*q.v.*) after such check has been processed (charged against the bank on which drawn and credited to the bank in which the check was deposited); may also be referred to as "good funds," since funds are not technically usable until the collection process is completed.

Commercial paper: Unsecured promissory notes of commercial or financial organizations that mature in 270 days or less and thus are not subject to SEC registration. (See chapter 19.)

Correspondent account: A deposit account maintained by one bank at another bank to facilitate clearance and/or collection of items between the banks.

Coupon rate: The annual rate of interest a borrower promises to pay to a lender (investor).

Credited funds: Funds that have been credited to a bank account on day of deposit; such funds, if a result of foreign checks

(*q.v.*), technically are not usable until they become collected funds (*q.v.*).

Dealer: A security dealer ordinarily takes a principal position in security transactions; a dealer may buy for his own account and/or sell investments from his inventory, as differentiated from a broker (*q.v.*).

Default: Failure to pay either principal or interest on a security when due; if a temporary delay is promptly remedied, the term *technical default* is used.

Delivery: Relates to physical delivery of securities; delivery vs. payment is the delivery of securities in exchange for money; delivery vs. receipt is delivery of securities against a signed receipt for such securities, but without actual payment.

Disbursements: As used in this book, the term "disbursements" refers to cash paid out for all purposes other than fund transfers and principal amounts paid for the purchase of short-term investments.

Discount: The difference between the maturity or face value of a security and a lower cost purchase price; discount rate refers to a percentage of face value (based on days to maturity divided by a 360-day base) as a purchase price reduction against maturity value.

Face value: The par or maturity value of a security; stated interest rates of return are based on face value as differentiated from cost value.

Federal funds: Funds that commercial banks have on deposit with the Federal Reserve System; when such funds of one bank are in excess of reserve requirements, the funds are "excess" or "free" and may be loaned by the bank with free reserves to a bank that is short of reserves; the rate at which such overnight loans are made is referred to as "federal funds rate."

Federal funds wire: A method of transferring funds between banks that are members of the Federal Reserve System; transfer is based on telephone or telegraphic orders given by a sending bank to its Federal Reserve branch bank; such transfers represent collected funds to the receiving bank on the same day if orders are given before afternoon cutoff times.

Float: Collection float is the term applicable to an amount of

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money or the lapse of time occurring between the crediting of funds by a bank to the customer's account and the date on which such deposited items are collected by the bank. *Disbursement float* refers to either the amount of money or length of time between the date checks or other disbursement orders are issued and the date of clearance or charge against the issuer's bank account.

Foreign checks: Checks drawn on a bank other than the bank in which they are deposited are called "foreign checks" by the bank of deposit.

Governments: All types of securities issued by the U.S. Treasury. (Bills, notes, and bonds in this category are explained in chapter 17.)

Incremental funding: Supplying funds to a bank account, on a collected funds basis, in amounts equal to expected daily clearance or to charges resulting from previously issued checks; a method for making use of disbursement float.

Interest rate: The interest payable on an annual basis and expressed as a percentage of the face value of an investment.

Issuer: The organization—commercial, financial, or governmental—that borrows money through the issuance of securities; usually applied to the U.S. Treasury, government agencies, and organizations issuing commercial paper.

Legal list (legals): A list of those securities in various states in which fiduciary institutions such as banks and insurance companies may invest; such securities meet certain specifications or restrictions and are high-quality investments.

Liquidity: A security's characteristic of being convertible promptly into cash with minimum risk of principal.

Making a market: A dealer who stands prepared to buy or sell at bid and offer prices that he quotes is said to be making a market.

Market price vs. *quote:* The market price of a security is the price at which the last order was executed; a quote designates the current bid and ask.

Marketability: The degree of ease with which a security can be resold in the secondary market.

Maturity: The date on which the principal or stated value of a security becomes due and payable; also, this term is sometimes applied to the length of period until payment is due, which is more properly known as "term."

Money market: A group of markets, not formally organized, for trading of short-term credit instruments including treasury bills, commercial paper, bankers' acceptances, negotiable certificates of deposit, repurchase agreements, and federal funds; the market machinery is composed of "money market banks," government securities dealers, commercial paper dealers, bankers' acceptance dealers, and money brokers.

Money market fund: An open-end mutual fund that invests solely in the money market type of short-term securities.

Negotiable: A term designating that title to a security is transferable by delivery either with or without endorsement; a bearer security does not require endorsement; if a security is payable to a named investor, transfer by endorsement and delivery is referred to as negotiability.

Non-negotiable: This term indicates an equity instrument on which title is not transferable by the payee through endorsement; this term usually refers to a type of bank certificate that cannot be resold before maturity.

Offer: The price at which a person is willing to sell a security, sometimes referred to as "ask" or "asked" price or rate. Also see *bid and ask*.

Par: The value of a security expressed on its face; the value on which a stated interest rate is computed.

Par value: The stated or face value of a security; the total amount due at maturity, exclusive of any stated interest.

Premium: The amount by which the price of a security exceeds the par or maturity amount.

Prime rate: Interest rate charged by banks to their prime or most credit-worthy borrowers; prime rate is often used as a base against which to compare money market rates.

Principal: The face or par value of an instrument, exclusive of accrued interest; also, the cost of a security that represents the principal amount of an investment.

Rate of return: The yield obtainable on an investment, based on purchase price and interest rate; this rate is expressed as an annual percentage of the security cost or invested principal.

Rating: As applied to short-term investments, rating refers to quality indications for commercial paper as assigned by Moody's, Standard & Poor's, or Fitch's.

Receipts: As used in this book, the term "receipts" refers to cash received from all sources except for fund transfers and the return of principal amounts on investments either sold or matured.

Repo or repurchase agreement: An agreement to sell an existing security at a stated price and to repurchase the same security at a specific date before maturity; the repurchase is normally at original sale price plus a stated interest amount or rate.

Reverse repo: A repurchase agreement in which the seller (issuer) and purchaser (investor) positions are reversed from normal custom; an example is a bank (usually a seller) buying a security under a repurchase agreement from a customer investor (usually a purchaser); this gives the customer (seller) cash for a short term without the customer incurring a loan liability.

Rights: A privilege extended by an issuer to existing security holders to subscribe to new or additional securities; in short-term investments, this term normally applies to specific treasury notes or bonds. (See chapter 24.)

Roll over: Reinvestment of funds received from a maturing investment in a new issue of the same or similar security.

Safekeeping: A service rendered by banks or security dealers to customers, whereby securities are held in the bank's vault and a receipt is issued to the purchaser acknowledging that title to the security rests with the purchaser.

Savings deposit receipt: A certificate or receipt issued by a bank for a deposit made on terms similar to a savings account deposit. Such receipts are normally used where a substantial deposit is made with the expectation of withdrawal of the total deposit in a lump sum at a later date.

Secondary market: An established market maintained for the purchase and sale of all outstanding issues of a specific type of security following the initial distribution of such securities.

Security dealer: See *dealer.*

Spread: The difference between two different figures or percent-

ages; this may be a difference in yields or between bid and ask prices of a quote.

Stop out: The low-dollar price at which the U.S. Treasury stops selling bills at a particular auction.

Subscription: An agreement or offer by an investor to purchase a certain volume of a newly issued security for a stipulated dollar price; such offer is not binding until accepted by the issuer; this term most appropriately applies to offers to purchase treasury notes or bonds that are not offered under the auction method of sale (*q.v.*).

Treasuries: Obligations of the U.S. Treasury, such as bills, notes, and bonds, purchased as investments.

Treasury tax and loan account (TT&L): U.S. Treasury accounts maintained at depository banks into which tax moneys and other revenues are deposited; the U.S. Treasury intermittently withdraws money from these accounts; banks are sometimes permitted to pay for securities purchased from the U.S. Treasury by crediting their TT&L account rather than by transferring actual funds to Federal Reserve Banks.

When-issued basis: This term, usually abbreviated to "w.i." in quotations, indicates price quotations on securities that are actually traded prior to their issue date.

Yield: The rate of annual income return on an investment, expressed either as a percentage of invested principal or of face or par value.

Appendix C: Summary of Common Short-Term Investments

Investment Security	Security Characteristics	Usual Minimum Denomination*	Normal Maturity Term	Earnings Computation Basis	Usual Source of Purchase	Chapter Reference
Certificate of Deposit						
Primary or Direct Issue	Certification by commercial bank that time deposit has been made.	$100,000	30 days and over	Interest on 360-day basis	Commercial bank	15
Secondary or Resale	(As above when negotiable and resold.)	$100,000	1 day and over	Interest on 360-day basis	Security dealer	15
Savings Account or Savings Deposit Receipt	Passbook or deposit receipt for savings deposit made.	Any amount (usually $5,000 and over)	"Demand" in practice	Interest on 360-day basis	Commercial bank	16
Treasury Bills						
Primary	Obligation of U.S. Treasury maturing within one year and originally sold at a discount at auction; principal and interest guaranteed by U.S. government.	$10,000	3 months to 1 year	Discounted on 360-day basis	U.S. Treasury auction via Federal Reserve Bank	17
Secondary	(Above security on resale market.)	$10,000	1 day to 1 year	Discounted on 360-day basis	Commercial bank, broker, or security dealer	17

Treasury Notes and Bonds						
Primary	Interest-bearing obligation of U.S. Treasury, sold at auction or subscription; principal and interest guaranteed by U.S. government.	$1,000	1 to 30 years	Interest on 365-day basis, paid semi-annually	U.S. Treasury auction or subscription via Federal Reserve Bank	17
Secondary	(Above security on resale market.)	$1,000	1 day to 30 years	Interest on 365-day basis, paid semiannually	Commercial bank, broker, or security dealer	17
Government Agencies	Bonds, debentures, notes. (See details in illustration 17.1.)	$1,000 (see illustration 17.1)	6 months to 25 years	Interest on 360-day basis of 30-day months paid semi-annually (also see illustration 17.1)	Commercial bank, broker, or security dealer	17
Bankers' Acceptance	Time drafts drawn by shipper of merchandise on major banks and on which accepting bank substitutes its credit by "acceptance."	Various, based on value of merchandise shipped	Various, to 9 months	Discounted on 360-day basis	Commercial bank or security dealer	18
Commercial Paper						
Dealer–Industrial	Unsecured promissory notes of leading industrial firms.	$25,000	3 to 270 days	Discounted on 360-day basis	Security dealer and/or bank	19

*Money market securities are normally purchased in minimum amounts of $100,000, although lower denominations may be indicated above.

Investment Security	Security Characteristics	Usual Minimum Denomination	Normal Maturity Term	Earnings Computation Basis	Usual Source of Purchase	Chapter Reference
Direct Issue—Finance	Unsecured promissory notes of finance companies or bank holding companies.	$100,000	3 to 270 days	Discounted on 360-day basis	Commercial bank, security dealer, or issuer	19
Repurchase Agreements	Short-term sale of any money market security based on seller's agreement to repurchase at same price plus interest at specific later date.	$100,000	1 to 29 days, occasionally longer or continuous	Interest on 360-day basis	Commercial bank or security dealer	20
Money Market Funds	Mutual fund of money market securities.	$1,000	Demand	Daily investment income increases shares or share values	Fund office	21
Master Note Agreement	Individual investor account at bank, with deposited or withdrawn funds invested through a demand note arrangement with a major borrower.	$1,000	Demand	Discounted on 360-day basis	Trust department of commercial bank	21
Open Time Deposit	Bank account invested as one of many investors in a single large CD; therefore, individual amounts not subject to CD maturity restrictions.	$1,000	Demand	Interest on 360-day basis	Commercial bank	21

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